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IN THE

SUPREME COURT OF THE UNITED STATES

October Term, 1964

No. 869

IN THE MATTER OF THE APPLICATION OF HOMER G. THOMSON

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

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PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

Petitioner prays that a Writ of Certiorari issue to review the decision of the United States Court of Customs and Patent Appeals, entered in the above entitled case on September 24, 1964.

OPINIONS BELOW

The actions of the Patent Office examiner are unreported and are printed in Appendix A, *infra*, pgs. A-1—A-2. The first decision of the Board of Appeals of the Patent Office is unreported and is printed in Appendix A, *infra*, pgs. A-2—A-6. The second decision of the Board of Appeals, which was rendered upon a request for reconsideration, is also unreported and is printed in Appendix A, *infra*, pgs. A-6—A-8.

The original majority and dissenting opinions of the United States Court of Customs and Patent Appeals

handed down April 25, 1963 are reported at 315 F. 2d 919; 794 O.G. 267; 137 USPQ 342 and are printed in Appendix A, *infra*, pgs. A-9—A-21. The original majority opinion was withdrawn and a substitute majority opinion, together with additional dissenting opinions, were handed down September 24, 1964, are reported at 51 CCPA .....; 336 F. 2d 604; 809 O.G. 659; 143 USPQ 21, and are printed in Appendix A, *infra*, pgs. A-22 — A-63.

JURISDICTION

The original decision of the Court of Customs and Patent Appeals was entered April 25, 1963. An order granting a rehearing was entered June 28, 1963 and a decision on the rehearing was entered by that Court on September 24, 1964. A Petition for Rehearing was denied on November 5, 1964. The jurisdiction of this court is invoked under 28 USC §1256 and *Lurk v. United States*, 370 U.S. 530 (1962).

QUESTIONS PRESENTED FOR REVIEW

1. Whether the Court of Customs and Patent Appeals can, consistent with Amendment V to the U. S. Constitution, reject petitioner's patent claims without a hearing as to the reasons for rejection.

2. Whether the Court of Customs and Patent Appeals can, as a Court handling cases and controversies under Article III of the U. S. Constitution, perform the administrative functions of examining patent applications assigned by law to the Commissioner of Patents to deny petitioner's claims on appeal.

3. Whether the Court of Customs and Patent Appeals is authorized by 35 U.S.C. 141-4 to consider reasons for

rejecting patent claims and to make findings which were not considered by the Patent Office tribunals, supported by the record made in the Patent Office, or included in the Reasons of Appeal.

CONSTITUTIONAL, STATUTORY, AND REGULATORY PROVISIONS INVOLVED

The provisions of the United States Constitution involved are Article III, Section 2, first paragraph and Amendment V, both of which are set forth in Appendix B, *infra*, p. B-1. The statutory provisions involved are Title 35 United States Code, Sections 132 and 141 through 145, all of which are set forth in Appendix B, *infra*, pgs. B-1—B-4. The regulatory provision involved is Rule 196(b) of the Rules of Practice of the U. S. Patent Office, set forth in Appendix B, *infra*, pg. B-4.

STATEMENT OF THE CASE

Petitioner filed an application for patent on a "Composition Resistor With Embedded Terminal Lead Head" on March 12, 1958. The examiner made several actions on the application (*infra*, pgs. A-1—A-2), followed by responsive amendments by petitioner, and issued a final rejection of the claims involved here, apparently holding that the differences between the invention defined by the claims and the prior art were such as would have been obvious to one skilled in the art. 35 U.S.C. 103. As prior art upon which to base this rejection the examiner cited portions of Bradley patent No. 1,835,267 and Steenweg patent No. 1,976,901.

Contending, in substance, that the pertinent teachings of the two prior art patents relied upon by the examiner

were essentially the same, and that those teachings had no bearing on the invention, petitioner appealed to the Board of Appeals, seeking reversal of the examiner's rejection. The Board of Appeals undertook a further search of the prior art, and produced three more prior art patents: Megow et al, No. 2,271,774; Kohring, No. 2,597,338, and Patla, No. 2,698,372. However the Board's only reference to those three patents in its decisions was the statement:

> "The resistors [of the application] are of the type generally shown by Megow et al., Kohring and Patla * * *." *(infra,* p. A-3) (Bracketed phrase added)

The Board of Appeals agreed with petitioner that the applicable teachings of the Bradley and Steenweg patents are substantially the same, and accordingly based its opinion on the Steenweg patent alone. However, the Board held that the examiner had not relied upon the teachings of those two patents alone, but rather on the teachings of those patents in light of the background of the invention and the state of the art as set forth in petitioner's application and in the record. Accordingly, the Board affirmed the rejection of the examiner, stating:

> " * * * Consequently, a consideration of the background of the asserted invention and the improvement over the admitted state of the art leads us to the conclusion that the claims do not patentably differentiate over the art before us. Accordingly, the rejection of the examiner will be sustained" *(infra,* p. A-6)

Petitioner then sought reconsideration of this decision by the Board of Appeals, alleging that the Board had

treated the claims in a manner different than that agreed upon by the examiner and the petitioner. The Board refused to modify its decision in any way, asserting that it had done nothing new, but had only reasserted and affirmed the rejection of the examiner. It is also important to note that if the Board had applied a reason of rejection different from the examiner's, it would have been required by Rule 196(b) of the Patent Office Rules of Practice to state it in its decision. (*infra*, p. B-4) There was no such statement in the Board's decisions in this case.

Convinced that the Patent Office tribunals were clearly in error, petitioner sought judicial review of their decisions, and since on the narrow issue as to the legality of the rejection of the Patent Office tribunals the record was complete, petitioner elected to appeal to the United States Court of Customs and Patent Appeals (which Court is at times referred to herein by the letters CCPA), instead of obtaining a trial *de novo* in the District Court. Petitioner contended on appeal, first, that the prior art cited did not show the claim elements pertaining to the lead wire and terminal head, and, secondly, that whether the prior art did or did not disclose the structure called for by those elements of the claims, it was nevertheless inadequate on the proposition of law, as set forth on page 207, Section 110, Vol. 2, of Deller's Walker on Patents, Second Edition:

> "When old features are associated in a new relation to get a new result that is advantageous or beneficial, and there is *nothing in the prior art to suggest* so relating the old features to get such new and beneficial results, [a patentable] invention is present." (Bracketed phrase and emphasis added)

Petitioner's Reasons of Appeal Nos. 3 through 8 to the CCPA recite the specific errors made by the Board which led to the erroneous treatment of the prior art and rejection of the claims thereon. The Reasons of Appeal Nos. 1 and 2 assert broadly that the Board of Appeals erred in rejecting the claims.

The CCPA, in its decision on appeal, criticized what it called "the obvious shortcomings of the examiner's answer." *(infra,* p. A-12) Moreover, that Court also criticized the action of the Board, stating, "the exact manner in which the references are relied on is somewhat obscured by the fact the Board did not expressly combine them." *(infra,* p. A-12) The Court noted the three references cited by the Board, and concluded that the Board "made no particular use" *(infra,* p. A-11) of the Patla reference, from which it must follow that the Board made no particular use of the Megow and Kohring patents either, since it treated all three together. Moreover, in posing the issue, the CCPA applied the rule of law contended for by the petitioner, stating, "The immediate question, therefore, becomes whether a terminal head such as claimed by appellant is disclosed in the prior art, and if so, whether its use in a resistor such as claimed is suggested by the prior art." *(infra,* p. A-13) Although the majority of the CCPA agreed with the Board that the terminal head was shown by the Steenweg reference, it refused to affirm the examiner's and the Board's reason for rejection. Instead, the majority reexamined the three patents cited by the Board to find the necessary suggestions for combining the references relied upon by the Patent Office tribunals, and the majority of the CCPA settled upon an entirely new teaching that it inferred from a drawing of the Megow patent.

The petitioner requested a rehearing by the CCPA, pointing out that the majority had gone beyond the statutory limits of its jurisdiction by going outside the Reasons of Appeal, the decision below, and the record, in arriving at its reason for rejecting the claims on appeal based upon the new found teaching in the Megow patent. Petitioner also contended that the Court in so doing had denied petitioner claims without due process of the law by preventing petitioner from being heard on the newly enunciated reasons for rejection, and that the Court had exceeded its jurisdiction as a judicial tribunal by undertaking to perform the administrative functions of the Commissioner of Patents. Finally, petitioner pointed out that the alleged teaching of a suggestion for combining a reference was in fact a grossly erroneous interpretation of what was shown in the Megow drawing, as anyone skilled in the art would plainly see.

The CCPA granted petitioner's request for a rehearing and the majority decision on rehearing (*infra*, pgs. A-22—A-29) deleted the material pertaining to this alleged teaching of the drawings in the Megow patent, and in place of the deleted reference to the Megow patent the majority inserted a new finding to the effect that terminal heads of the sort claimed were shown in the Kohring patent, and that those as shown in Kohring were conventionally employed in the resistor art and functioned similarly as other prior art in Megow. The Court upon these findings, found the necessary suggestion for combining prior art teachings. Since the question of the type of heads conventionally employed in the resistor art and the comparative operation of such heads with other prior art had never been raised or considered in the Patent Office, the record is entirely silent on these facts. Whether the Kohring disclosure was ever actually em-

ployed at all, much less conventionally employed, in the art cannot be discerned from the record, and the same may be said of the Steenweg device. Moreover, the disclosures of the Kohring patent, like those of the Megow and Patla patents had not been used by the Patent Office tribunals to reject the claims according to the decisions of both the Board and the Court. Nevertheless, the majority opinion stated that since it no longer relied upon the Megow patent it did not have to decide the questions pertaining to its jurisdiction, though it did not state any basis on which the Kohring patent could be distinguished from the Megow patent as to those questions.

Hence, petitioner again sought a rehearing before the CCPA, pointing out that a reason for rejecting the claims based on alleged teachings of the Kohring patent, like the abandoned reason based on the Megow patent, was new to the case, and that the finding pertaining to practices that may be conventional in the art was both new to the case and unsupported by the record. Petitioner repeated the complaint that the Court had exceeded its jurisdiction and had denied petitioner's claims without due process of law as set forth in the Fifth Amendment to the U. S. Constitution. However, the CCPA denied a second rehearing.

Vigorous dissenting opinions were filed by Associate Judges Rich and Smith to both of the majority opinions, dissenting on the merits and dissenting from the majority's excursions beyond the record and the decisions of the Patent Office tribunals. Judge Rich declared, "We are not at liberty to make new rejections. In my opinion the majority has clearly done that." (*infra*, p. A-47) Judge Smith observed, "To deny now his claims on this basis, as the majority would do, seems to me to be a denial of appellant's right to be heard." (*infra*. p. A-60)

REASONS FOR GRANTING THE WRIT

The decisions of the CCPA in this case have raised important constitutional and statutory issues that have frequently recurred in the history of the jurisdiction of appeals from the Patent Office. However, in view of statutory,[1] judicial[2] and circumstantial[3] developments in recent years, the resolution of these issues at this time has taken on a pressing urgency. Unfortunately, the body of case law developed by the CCPA as to these issues, though quantitatively overwhelming, presents a quagmire of confusion and contradiction, unrelieved by any attempt in the last three decades to separate the authoritative decisions from those which will no longer be followed.[4]

Nowhere is the refusal of the CCPA to come to grips with these problems more evident than in the present case. These issues have twice been presented to the CCPA in this case. These issues have been vigorously argued to that Court, and the dissenting opinions filed in this case have set forth unequivocal statements on them. But the

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[1] In 1958 Congress amended 28 USC 211 to read that the CCPA "is hereby declared to be a court established under Article III of the Constitution of the United States."

[2] *Lurk v. United States*, 370 U.S. 530 (1962)

[3] In the five year period 1959 through 1963 the number of appeals from the Patent Office to the CCPA has more than doubled. Statistics for 1964 are not available at the time of this writing, but it is believed that the trend of previous years continues.

Fiscal Year Ending:	6/30 1959	6/30 1960	6/30 1961	6/30 1962	6/30 1963
Patent Cases Pending:	129	134	148	207	245
Patent Cases Docketed:	107	127		174	251

[4] Counsel for petitioner has reviewed over 150 CCPA opinions involving the jurisdiction of that Court. A digest of the cases, that groups them in a fashion to show the contradictions in rulings of the CCPA, has been filed in the clerk's office with this brief for further reference if desired.

majority of the Court has determined to stand mute—absolutely silent. The majority has not only refused to decide the controlling statutory questions presented, but it has refused to acknowledge the existence of the equally important Constitutional issues presented. Perhaps that determined silence is occasioned by the demonstrable fact that the majority has treated these questions in this case in a manner directly contrary to what the same majority declared to be the law in other cases decided in the same court terms as the present appeal.[5]

The public is entitled to know what procedural requirements are enforced and the scope of the jurisdiction properly exercised by the CCPA. To that end, as well as to preserve the just administration of the patent system, there should be a determination of controlling issues properly presented to the CCPA. For these reasons, the exercise of supervisory authority by the United States Supreme Court is urgently petitioned to provide needed guidance on these questions.

1. The majority of the Court of Customs and Patent Appeals refused to decide whether an appellant seeking patent claims is entitled, under the due process clause of the Fifth Amendment to the Constitution, to be heard on the reasons assigned by that Court for rejecting the claims.

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[5] In *In re Reynaud, infra,* p. 16, operability of prior art was not considered because there was no evidence before the Patent Office; this contrasts with findings regarding Kohring in the present case. In *In re Gruschwitz and Friz, infra,* p. 17, broadly stated Reasons of Appeal were held not to bring before the CCPA the reasons for rejection below; this contrasts with the reliance on new reasons in the present case. In *In re Kalter, infra,* p. 17, the CCPA refused to apply a prior art patent, relied on below for rejecting one claim, against a second claim; this contrasts with the application of Kohring and Megow in the present case to reject claims.

Clearly the majority of the CCPA based its rejection of the claims on alleged findings and reasons that had been neither raised nor suggested in the Patent Office. The Board's rejection was confined to an affirmance of the reasons for rejection raised by the examiner, and the examiner had never seen the Kohring patent relied upon by the majority of the CCPA. Had there been any basis for supposing that the CCPA could construe new rejections out of the Megow, Kohring or Patla patents cited by the Board of Appeals, the petitioner would have elected to follow the alternate available avenue of judicial review, a civil action in the District Court, 35 U.S.C. 145, where he could have introduced evidence pertaining to those patents. However, since the Board had not relied upon them — and surely the Board did not rely upon them, unless it be assumed that the Board acted in violation of Patent Office Rule 196(b) — the petitioner elected the less complex and expensive appeal to review the legality of the Board's rejection.

Valuable rights entitled to the protection of a fair hearing are involved here. Article I, sec. 8, clause 8, of the U. S. Constitution states that:

> "The Congress shall have power * * * To promote the progress of science and useful arts, by securing for limited times to authors and inventors the *exclusive right* to their respective writings and discoveries." [Italics added]

The phrase "exclusive right" is but descriptive of property rights. 35 USC 261

That the Fifth Amendment guarantee of due process of the law applies to inchoate patent rights, must follow from this Court's requirement for due process of law under the Fourteenth Amendment to rate making cases such as *Ohio Bell Telephone Co. v. Public Utilities*

Commission of Ohio, 301 U.S. 292 (1936). There this Court held it to be a denial of due process of law for the Commission in setting phone rates to rely in part upon price indices of which it took judicial notice without permitting the Telephone Company to introduce evidence on the issue. That case cannot reasonably be distinguished in substance from the present case, and it spells out a requirement for an opportunity to be heard on important evidence. That due process of law requires at least some form of hearing with an opportunity to introduce evidence is, of course, beyond peradventure. *Joint Anti-Fascist Refugee Committee v. McGrath*, 341 U.S. 123, 161, 165 (1950); *Baltimore & Ohio Railroad Co. et al. v. United States, Interstate Commerce Commission et al.*, 264 U.S. 258, 265 (1924); *Hager v. Reclamation District No. 108*, 111 U.S. 701 (1884).

Hence, the decision of the CCPA in rejecting the claims on appeal for reasons *not* raised in the Patent Office constitutes a denial of this minimum requirement of due process of the law, for there is no opportunity for an adequate hearing on new matters raised by that court, as its review is confined to the record below, and the Patent Office is precluded from further consideration of claims rejected by the Court. 35 U.S.C. 144. The U. S. Supreme Court is requested to grant this petition to protect petitioner's constitutionally guaranteed rights and to prevent violation of those rights of parties before the CCPA in the future.

2. The majority of the Court of Customs and Patent Appeals in this case refused to consider whether that Court, as a Court created under Article III of the U. S. Constitution, and thus limited in its jurisdiction to cases and controversies, can create new reasons for rejecting claims presented to it on appeal from the Patent Office Board of Appeals.

Congress delegated the responsibility for examining patent applications to the Commissioner of Patents, who also has the responsibility for assigning reasons for rejection of claims which he finds are not in compliance with the law. 35 U.S.C. 132. A party dissatisfied with a decision of the Board of Appeals, which is rendered in the discharge of the Commissioner's responsibilities, may appeal to the CCPA. 35 U.S.C. 141. The decision of that Court is to govern further proceedings in the Patent Office. 35 U.S.C. 144. In the alternative, a party dissatisfied with the decision of the Board of Appeals may file a civil action against the Commissioner in the District Court for the District of Columbia, and the District Court's decision may authorize the Commissioner to issue a patent. 35 U.S.C. 145.

In 1958, Congress amended 28 U.S.C. 211 to declare that the Court of Customs and Patent Appeals is established under Article III of the Constitution. In 1962, the United States Supreme Court confirmed that the CCPA is established under Article III of the Constitution. *Lurk v. United States*, 370 U.S. 530 (1962). Accordingly, the Congressional intent that a party dissatisfied with a decision of the Board of Appeals shall have two alternative avenues of *judicial* relief was made manifest and accomplished. Judicial relief and review is provided only in cases and controversies where two adverse parties present their dispute to an impartial judge who shall decide between them. *Muskrat v. United States*, 219 U.S. 346 (1911).

In the present case, by assigning a new reason for rejecting the claims in controversy the majority of the CCPA has in reality sought to perform the examination function assigned by Congress to the Commissioner of Patents. No one would contend that function to be a

judicial function under Article III of the Constitution. There are no adverse interests, but if there were, there could be no impartial judge, since the examining party, be it the Commissioner, an examiner, the Board of Appeals or a Court would have to be one of the adverse parties.

On appeal to the CCPA, the matter in controversy is the reason for rejection relied upon by the Board of Appeals. This follows from the statutory role of the decision of the CCPA, which is to govern further proceedings in the Patent Office. The CCPA cannot be concerned with whether or not a patent shall issue, as is the District Court in a civil action under 35 USC 145. *Hill v. Wooster,* 132 U.S. 693 (1890); *Hoover v. Coe,* 325 U.S. 79 (1945). The issuance of a patent remains the responsibility of the Commissioner. Accordingly, there is no controversy between an appellant and the Commissioner before the CCPA as to the ultimate patentability of the subject matter involved. Therefore, when the CCPA takes it upon itself to settle the question of ultimate patentability of the subject matter by examining the application and the prior art to discover reasons for rejection, which were not raised in the Patent Office, the CCPA goes beyond the case and controversy presented to it and seeks to perform the administrative function expressly delegated by Congress to the Commissioner of Patents. This the Court may not do. Cf. *Federal Power Comm. v. Idaho Power Co.,* 344 U.S. 17 (1952).

Although the CCPA may not be concerned with the ultimate issuance of a patent, its jurisdiction nevertheless deals with justiciable controversies susceptible of judicial determination within the scope of Article III of the Constitution. *Lurk v. United States,* 370 U.S. 530 (1962). Cf. *Federal Radio Comm. v. Nelson Bros. Co.,* 289 U.S.

266 (1933). The decisions of the Board of Appeals are appealable final orders. Cf. *United States v. Jones,* 119 U.S. 477 (1886). If the decision of the Board is affirmed by the CCPA, appellant's claim to patent rights in the subject matter of the claims on appeal is foreclosed. The effect of a reversal of a decision of the Board is to reopen the prosecution of the application as to the claims involved so that further proceedings may be had, and such proceedings may result in a second rejection of those claims for a reason different from that previously reversed by the Court. *In re Citron,* 51 CCPA 869; 326 F. 2d 418; 140 USPQ 220 (CCPA 1963).

Even if it were to be held that the jurisdiction of the CCPA is administrative, and that the Patent Statutes give it jurisdiction to apply new reasons of rejection, any attempt, such as that of the majority of the CCPA in this case, to do so would be illegal under the Administrative Procedure Act. 60 Stat. 237 (1946), 5 U.S.C. §1001 et seq. (1946). Section 5 (5 U.S.C. 1004) requires a full hearing according to Section 7 (5 U.S.C. 1006) of such matters where there is no subsequent trial *de novo.* Since there is no trial *de novo* available following a decision of the CCPA, and since there are no provisions for a full hearing with right to introduce evidence in an appeal, a decision on appeal touching matters not decided below would be illegal.

Since examination of patent applications is an administrative function, and since it can hardly be contended that the bulk of the jurisdiction of an Article III Court is administrative, *Tutun v. United States,* 270 U.S. 568 (1926), the CCPA must be without jurisdiction to consider reasons for rejecting claims which were not applied to those claims in the Patent Office. Accordingly, this Court is requested to grant this petition for certiorari to

protect the petitioner from the extrajudicial decisions of the majority of the CCPA in the present case, and to guide the CCPA in the future exercise of its intended, legitimate jurisdiction.

3. The majority of the Court of Customs and Patent Appeals in the present case has sidestepped the important question squarely presented, to wit: whether 35 U.S.C. 141-4 authorizes that court to decide matters not specifically set forth in the Reasons of Appeal, to decide matters not passed upon by the Board of Appeals, and to make findings not supported by evidence produced in the Patent Office.

When an appeal is taken to the CCPA, the appellant files in the Patent Office his Reasons of Appeal. 35 USC 142. The Commissioner of Patents transmits original papers and evidence in the case to the Court, and furnishes the Court with the grounds of the decision in the Patent Office. 35 USC 143. The CCPA shall then "determine such appeal on the evidence produced before the Patent Office, and the decision shall be confined to the points set forth in the reasons of appeal. * * * and govern the further proceedings in the case." 35 USC 144. These restrictions confine the review of the CCPA to the evidence adduced and the questions of law preserved by appellant. *Lurk v. United States,* 370 U.S. 530, 575, 576 (1962). The CCPA has also held that it can correct only "such errors as are made by the patent tribunals appealed from, and which are definitely pointed out and complained of in the reasons of appeal." *In re Tucker et al,* 19 CCPA 810; 54 F. 2d 815; 12 USPQ 131 (CCPA 1932).

Yet, in the present case, there is no evid of record pertaining to use of the structure disclosed in the Kohring patent, as was relied on by the majority of the CCPA. Nor is there evidence pertaining to findings of the majority of the CCPA with regard to similarities in function between some of the prior art structures before it and as to what is being conventionally employed in the resistor art. Yet, a year before the appeal in the present case was heard, the CCPA held that it could not make findings as to practices in commerce on evidence which was not produced before the Patent Office. *In re Burndy Corp.*, 49 CCPA 967; 300 F. 2d 938; 133 USPQ 196 (CCPA 1962). In the same year as the second decision in the present case, the CCPA held it could not consider the operability of a prior art patent since no evidence on the question was produced before the Patent Office. *In re Reynaud*, 51 CCPA .....; 331 F. 2d 625; 141 USPQ 515 (CCPA 1964).

Petitioner's Reasons of Appeal to the CCPA do not, of course, include reference to the three patents first cited by the Board. Of the eight Reasons of Appeal, two are stated in general terms, and only these could provide a basis for considering these patents. Yet, the majority of the CCPA has recently held that such Reasons are not sufficient to invoke the Court's jurisdiction. *In re Gruschwitz and Fritz*, 50 CCPA 1498, 320 F. 2d 401; 138 USPQ 451 (CCPA, 1963) Cert. den. 375 U.S. 967; *In re Timmerbeil et al.*, 50 CCPA 1514; 320 F. 2d 413; 138 USPQ 461 (CCPA 1963).

The CCPA has, in this case, twice rejected the claims on appeal for new reasons not raised in the Patent Office. Yet, that is precisely what the CCPA held it could

not do in a far closer case decided at the same time. *In re Kalter,* 50 CCPA 1191; 316 F. 2d 747; 137 USPQ 347 (CCPA 1963).

The majority of the CCPA in this case has done what it was simultaneously declaring to other litigants it could not, as a matter of law, do. The crux of the matter is that this is not an isolated instance.[6] For example, on the matter of the requirement for Reasons of Appeal, the CCPA has held that generally stated reasons bring the entire Patent Office decision before it for review, *In Re Wagenhorst,* 20 CCPA 991; 64 F. 2d 780; 17 USPQ 330 (CCPA 1933); but, to the contrary it also holds that generally stated reasons can bring nothing before it for review, *In re Dichter,* 27 CCPA 1060; 110 F. 2d 664; 45 USPQ 91 (CCPA 1940). Both these decisions stand as controlling precedent today. On the scope of its review, the CCPA has held that it is confined to those reasons for rejection that were raised by the Patent Office, *In Re Tucker et al., supra;* but, to the contrary its review has been unrestrained by the reasons for rejection in the Patent Office, with the right to review all the evidence and find a new reason. *In re Azorlosa,* 44 CCPA 826; 241 F. 2d 939; 112 USPQ 156 (CCPA 1957). These conflicting positions stand unreconciled. Finally, as to the record it may rely upon, the CCPA has held both that it is [*In Re Wohnsiedler and Ammondson,* 50 CCPA 1153; 315 F. 2d 934; 137 USPQ 336 (CCPA 1963)] and that it is not [*In Re Adams, Kirk and Petrow,* 50 CCPA 1185; 316 F. 2d 476; 137 USPQ 333 (CCPA 1963)] confined to the evidence considered and relied upon in the Patent Office.

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[6] See footnote 4.

CONCLUSION

The CCPA has repeatedly held that it has no power to affirm the Patent Office on reasons that were not raised by that body. This is a question of jurisdiction. In the instant case, and from time to time in other cases, the CCPA has done that which it repeatedly held was beyond its jurisdiction. This contradiction leaves parties and their counsel without guide lines as to what issues they must meet before the CCPA. As a result, opportunities to be heard on issues first raised by the CCPA, and to produce evidence to controvert findings first made by the CCPA, are denied. It is to this jurisdictional question itself, that this petition is respectfully addressed.

Respectfully submitted,

LOUIS QUARLES
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Milwaukee, Wisconsin 53202
Attorney for Petitioner

APPENDIX A TO PETITION FOR WRIT OF CERTIORARI

OPINIONS BELOW

Letter of Examiner, June 26, 1958

* * *

Claims 1-9 are now in this case, and are rejected as unpatentable over Steenweg who shows a molded composition, resistor with a terminal having (1) an inner enlarged portion (2) an outer enlarged portion, and (3) a constricted portion between the two enlarged portions and intimately embedded in conductive contact with the resistance path.

C. A. LEROY
Examiner

Letter of Examiner, January 20, 1959

Responsive to the amendment received October 10, 1958.

Claims 1-9 are now in this case.

Claims 1-6 and 9 are again rejected as unpatentable over Steenweg for reasons cited in the ' st Office action.

The remarks of the applicant have been considered. The novelty, if any, in this application appears to be the particular configuration of the terminal members and to embed the terminal in either (1) the integral resistor or (2) the integral cement, would be a matter of choice. The Bradley patent, of record, shows a similar terminal member embedded in the integral body of the fixed resistor.

Claims 7 and 8 if made independent of rejected claim 1, will be allowed.

THIS ACTION IS MADE FINAL.

N. MARMELSTEIN
Examiner

Letter of Examiner, August 6, 1959

Responsive to amendment filed July 17, 1959 under Rule 116.

The amendment received July 17, 1959 has been entered for purpose of appeal. Appeal No. 272-08, dated July 17, 1959.

Claims 1, 3-6 and 9-12 are now in this case.

Claims 10 and 11 will be allowed if presented in proper form.

Claim 12 does not appear allowable over Steenweg and Bradley for reasons cited in the rejection of claims 1-6 and 9 in the Office action mailed January 20, 1959.

R. K. WINDHAM
Acting Examiner

Decision of Board of Appeals, July 19, 1961

Before Surle and Magil, Examiners-in-Chief, and Wiles, Acting Examiner-in-Chief.

Wiles, Acting Examiner-in-Chief.

This is an appeal from the final rejection of claims 1 to 6 and 9 and the Examiner's refusal to allow claim 12, which was added after the final rejection. Claims 10 and 11, the only remaining claims, have been allowed.

Claim 1 is sufficiently representative and reads as follows:

> 1. A molded composition fixed resistor, comprising: an integral body, made of moldable insulating material; minute conductor particles distributed

throughout at least a portion of said insulating material to form a high-resistance conducting path therethrough; and at each end of said resistance path a terminal electrode, which comprises a lead-wire and an enlarged head, coaxial and integral therewith, the head being intimately embedded in the body in intimate conductive contact with the resistance path portion of said body; wherein each head comprises an inner enlarged portion, an outer enlarged portion, and a constricted portion between the two enlarged portions, the outer face of the outer enlarged portion being exposed through and flush with a face of the body and constituting an outwardly facing shoulder of the terminal electrode; all of the head inwardly from the exposed portion of the head being in intimate supporting contact with the body.

The references relied on are:

Bradley	1,835,267	Dec. 8, 1931
Steenweg	1,976,901	Oct. 16, 1934

Background art:

Megow et al.	2,271,774	Feb. 3, 1942
Kohring	2,597,338	May 20, 1952
Patla	2,698,372	Dec. 28, 1954

The alleged invention, as apparent from the reproduced claims, relates to molded composition fixed resistors in which the lead wire is integral with a head embedded in the molded material. The resistors are of the type generally shown by Megow et al., Kohring, and Patla above cited as well as the Megow et al. patents referred to by appellant in his disclosure. Appellant's object is to provide a satisfactory bond to overcome "the disadvantages of the frusto-conical head in very small sizes" of re-

sistors and also to provide a better head in the sizes in which the frusto-conical head is completely satisfactory. Appellant's asserted improvement appears to be essentially concerned with meeting rigorous military requirements for miniaturized resistors which, of course, involves a matter of size.

The Examiner states that the references are adequately described in the brief and we will accept such description for the decision herein.

The Examiner has rejected the claims as unpatentable over either Bradley or Steenweg. Although the Examiner has not given a detailed discussion of the references and the application thereof to the claims, it is evident that he considers the basic feature of the claimed resistor as anticipated by the resistors disclosed in the cited art.

Our consideration of all the arguments advanced on behalf of appellant at the hearing and in the briefs leads us to the conclusion that the rejection is without reversible error.

Appellant considers the Bradley disclosure as cumulative to that of Steenweg and as we are of the same view, we will limit our discussion to the Steenweg patent.

While appellant contends that his resistor device is in the "wire art" whereas that of Steenweg is in the hardware art, this contention overlooks the fact that appellant's alleged improvement is in the structure of the head embedded in the molded material which is integral with the lead wire rather than in the concept of using a lead wire integral with a head, as is evident from the patents mentioned in the disclosure, those above cited, as well as the disclosure on page 2 of the application which re-

lates to the disadvantages of using a frusto-conical headed wire in very small sizes of resistors. Hence, the essence or concept of novelty in the asserted combination is in the enlarged head which serves to form a better and more satisfactory union with the molded composition. Since the frusto-conical head is stated to be customarily formed by a swaging operation by the prior art, the term "swaging", even if considered material in a product claim, thus would not connote any novelty in a product so obtained. Although it is thus evident that novelty does not reside in the use of lead wires or resistors, element 20 of Steenweg in Figure 3 would be suggestive of the use of a lead wire.

Appellant urges "Steenweg only has his inner enlarged portion embedded, and the rest of the terminal merely abuts the end and the inner wall of the tubular resistance." Appellant also asserts that the outer enlarged portion of the head is not exposed through and flush with a face of the body as required by claim 1. However, element 12 of Steenweg has a restricted portion interposed between two enlarged portions of the head embedded in the resistor composition, the inner enlarged portion of the head is smaller (note lines 96-98, page 2) and the portions of the enlarged head are embedded in the molded material. In either Figure 1 or Figure 3, the larger portion of the embedded head extends out of the molded material hence is "exposed through" a face of the body, and in Figure 3 the outer circumferential face of element 31 is flush with the face of the body portion of tubular member 10 and thus meets the requirements of claims 1, 9 and 12. Although appellant stresses miniaturization or size as a distinction over the art, the claims, as is usual, afford no means for any significant difference in this respect. In fact as the claims are un-

limited relative to size, appellant's disclosure provides no basis for any advantage over the admittedly old frustoconical head of the art, which employed in the larger sizes is admitted to be completely satisfactory. Consequently, a consideration of the background of the asserted invention and the improvement over the admitted state of the art leads us to the conclusion that the claims do not patentably differentiate over the art before us. Accordingly, the rejection of the Examiner will be sustained.

The decision of the Examiner is affirmed.

AFFIRMED

Decision of Board of Appeals, November 22, 1961

Before Surle and Magil, Examiners-in-Chief, and Wiles, Acting Examiner-in-Chief.

Wiles, Acting Examiner-in-Chief.

Appellant requests reconsideration of our decision of July 19, 1961, in which we affirmed the Examiner's refusal of the claims as being unpatentable over the art.

Appellant asserts that our decision is based upon assumptions not in accordance with the record which are stated to have lead to an erroneous conclusion as to the pertinency of the reference. However, in the event that we adhere to our interpretation of the language of the claims, then we are asked to consider a supplemental amendment filed concurrently with the petition and stated to be "directed only to Applicant's particular advance . . . ."

According to the petition

> "It is with surprise that Applicant now sees Claim 1 interpreted differently from what the supposed

> normal interpretation was believed to be, and it is this new issue of claim interpretation, never raised by the Examiner, which occasions this request for reconsideration."

In other words, we have given the claim, in accordance with normal procedure, the broadest possible interpretation, and this is urged as "a new issue" not raised by the Examiner and thus occasions the petition for reconsideration. However, it is not evident that the surprise asserted can be based on an interpretation premised on such a normal procedure and we find nothing in our interpretation at variance with that of the Examiner in his application of the reference to claim 1.

While appellant may disagree with our interpretation of claim 1, which in effect is no different from that of the Examiner's, he has not pointed out any reversible error in our decision. Appellant, before the Examiner as well as before us, stressed as the improvement the enlarged head of the lead wire and we were not, and still are not, convinced that this improvement in the combination set forth in the claims patentably distinguishes over the art. Also, we did not see any need to individually discuss the other appealed claims as these had been adequately considered by the Examiner in relation to the recitations therein and we were not convinced that any inventive departure over the art was recited therein.

It appears from the petition that the proposed amendment limits the claims to only appellant's advance over the art and to avoid the art, a position not consistent with that advanced in the petition for reconsideration of our decision.

In any event, it is not our custom to consider new claims or amendments to appealed claims after a decision has

been rendered, (*Ex parte* Moore, 1923 C. D. 13, 307 O. G. 4 and *In re* Shea, 31 CCPA 1196, 1944 C. D. 535, 568 O. G. 201, 143 F. (2d) 969, 62 USPQ 274), and we see no reason to depart from this custom in this particular instance.

The petition has been reconsidered and since it is not seen that the petition presents any material fact or argument not fully considered by us in rendering our decision, it is denied with respect to making any change therein.

UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

IN THE MATTER OF THE	) October Term	1962
	)	
APPLICATION OF	) Patent Appeal No.	6914
	)	
HOMER G. THOMSON	) Serial No.	720,845

April 25, 1963

WORLEY, Chief Judge.

Appellant seeks reversal of the Board of Appeals' decision which affirmed the examiner's rejection of claims 1, 3 to 6, 9 and 12 of appellant's application[1] entitled "Composition Resistor With Embedded Terminal Lead Head" as unpatentable over the prior art. Two claims have been allowed.

The invention relates to molded composition electrical resistors of fixed resistance, comprising an elongated cylindrical body of molded thermosetting insulating material having minute conductive particles distributed therein to form a high resistance conducting path. Preferably, an outer portion of plain insulating material surrounds the portion forming the conducting path. Each end of the cylindrical body contains a terminal electrode consisting of a lead wire with an enlarged head. The latter is embedded in the resistor body and in contact with the portion forming the conducting path. The specification states that the principal object of the invention is to devise a more satisfactory terminal head, to overcome the disadvantages of the frusto-conically shaped head of the prior art. The latter is said to be particularly unsatisfactory in very small or miniaturized resistors.

Two head designs are disclosed. One construction consists of two enlarged annular portions separated by an annular groove extending completely around the head.

[1]Serial No. 720,845, filed March 12, 1958.

The enlarged portion, extending farthest into the resistor body, has a smaller diameter than the outer enlarged portion, while the groove has about the same diameter as the lead wire. In his brief appellant refers to the head as being "dumbell" shaped. That is a fair description if we add that one side of the dumbbell is larger than the other. The second construction shown has a head having a frustoconical shape, with the constricted or grooved portion defined by two transverse flat grooves on opposite sides of the head.

Claim 1 is representative:

1. A molded composition fixed resistor, comprising an integral body, made of moldable insulating material; minute conductor particles distributed throughout at least a portion of said insulating material to form a high-resistance conducting path therethrough; and at each end of said resistance path a terminal electrode, which comprises a lead-wire and an enlarged head, coaxial and integral therewith, the head being intimately embedded in the body in intimate conductive contact with the resistance path portion of said body; wherein each head comprises an inner enlarged portion, an outer enlarged portion, and a constricted portion between the two enlarged portions, the outer face of the outer enlarged portion being exposed through and flush with a face of the body and constituting an outwardly facing shoulder of the terminal electrode; all of the head inwardly from the exposed portion of the head being in intimate supporting contact with the body.

The examiner relied on the following references:

Bradley	1,835,267	December 8, 1931.
Steenweg	1,976,901	October 16, 1934.

As "background art" the board added:

Megow et al.	2,271,774	February 3, 1942
Kohring	2,597,338	May 20, 1952.
Patla	2,698,372	December 28, 1954.

The Steenweg patent discloses cylindrical resistors mounted on spark plugs. The most pertinent part of that reference shows a resistor unit comprising a molded tubular resistance element with terminals which engage the element at each end, and are embedded in an insulating binding cement within the element. The portion of the terminal element projecting into the cement has an annular groove interposed between two enlarged portions of that element.

The Bradley patent was considered cumulative by the board. Since we shall not rely on it, it requires no discussion, nor does the Patla reference of which the board made no particular use.

Kohring discloses electrical resistors made of cylindrical ceramic shells having resistance cartridges inside. The resistance cartridge comprises a ceramic core on which there is a resistance element made of "spiral convolutions of hard carbon as cut in a coating formed in situ." The ends of the resistance element are connected at each end to metal terminals which are anchored in the cores. Various shapes for terminals are shown, including one defined by the patentee as having "transverse or circular fins." That element may be described as being dumbbell shaped.

The record before us includes three Megow et al. patents. Two are referred to in appellant's specification[2] as describing processes by which the resistors of the present invention, except for the head, may be made. The third patent was cited by the board as "background art." It discloses molded electrical resistors consisting of an insulating sleeve of thermosetting material, a conducting core

[2]U. S. Patent No. 2,261,916, issued Nov. 4, 1941, and
U. S. Patent No. 2,302,564, issued Nov. 17, 1942.

made of conductor particles dispersed in a thermosetting binder, and wire terminals at each end. The terminals have a shank or lead wire portion and an integral, generally frusto-conical head. The latter is shown in the drawings to be embedded entirely in the conducting core portion of the resistor body, with the narrower outer portion of the head flush with the end of the molded cylinder body. The drawings also disclose that the shape of the head is not perfectly frusto-conical, but that it has a small concave depression extending completely around the head into which the molten conducting material flows before setting.

The exact manner in which the references are relied on is somewhat obscured by the fact the board did not expressly combine them. The board gives the following resume of the examiner's rejection:

> The Examiner has rejected the claims as unpatentable over either Bradley or Steenweg. Although the Examiner has not given a detailed discussion of the references and the application thereof to the claims, it is evident that he considers the basic feature of the claimed resistor as anticipated by the resistors disclosed in the cited art.

In our opinion, that evaluation is most generous in view of the obvious shortcomings of the examiner's answer.

The board found the claimed resistors to be of the type shown by Megow et al., Kohring, and Patla, as well as the Megow et al. patents referred to in appellant's disclosure. It was of the opinion that the essence of the alleged novelty in the combination claimed is found solely in the shape of the enlarged head. Considering the Bradley reference to be cumulative, the board limited its discussion to the Steenweg patent, wherein it found the terminal element of a resistor unit having "a restricted

portion interposed between two enlarged portions of the head embedded in the resistor composition," with the inner enlarged portion of the head smaller, and portions of the outer enlarged portion embedded in the molded material. The board concluded, "consideration of the background of the asserted invention and the improvement over the admitted state of the art leads us to the conclusion that the claims do not patentably differentiate over the art before us."

We agree with appellant that the issue is one of obviousness within the meaning of 35 U.S.C. 103.

Appellant's specification states:

> In spite of the difference of the head * * * from the frusto-conical head of the prior art * * * the resistor of the present invention may be made by the process shown and described in Patent No. 2,302,564 * * *. Or, if the entire body be made of resistor material, as suggested herein for extremely small resistors, the resistor may be made by the process shown and described in United States Patent No. 2,261,916 * * *.

In view of that statement, as well as our evaluation of the three Megow patents, it is clear that the sole difference between the claimed resistors and the prior art lies in the particular shape and structure of the terminal head on the lead wires. The immediate question, therefore, becomes whether a terminal head such as claimed by appellant is disclosed in the prior art, and if so, whether its use in a resistor such as claimed is suggested by the prior art. We think both questions must be answered affirmatively.

The only limitation in claim 1 which is not taught by the Megow patents defines the head as comprising "an

inner enlarged portion, an outer enlarged portion, and a constricted portion between the two enlarged portions," i.e. having the shape of an uneven sided dumbbell with the end having a smaller diameter extending inwardly into the body of the resistor. In our opinion, resistor terminal elements of the shape defined by claim 1 are clearly disclosed by Steenweg and also Kohring. That neither of those references discloses resistors *identical* to those of the Megow type we deem of little importance. What is significant is the teaching that in the electric resistor art, dumbbell shaped metal terminal members are conventional. Each reference also shows the end with the smaller diameter to be inward.

The use of dumbbell shaped terminal element being conventional in the art, we are faced with the question of whether use of the dumbbell shaped head on the Megow type resistor is fairly suggested by the references. We note that the frusto-conical heads shown in the drawings of the Megow patents are quite similar to the dumbbell shape, since the sides of the conical element, after being pressed into place, are shown to contain a circumferential concavity. That cavity appears to function similarly to the groove between the end portions of the claimed head in permitting the thermosetting core material to flow into it, which, after hardening, will tend to prevent axial movement of the terminal member. In view of the similarity between the terminal heads in the Megow patents and the conventionality of dumbbell shaped heads in the art, use of the latter in the Megow type of resistor is considered an obvious choice of terminal head to one skilled in the art. It is apparent that the Megow type resistor modified as indicated meets every limitation set forth in the appealed claims.

Appellant argues primarily that with miniaturized resistors considerable difficulty was encountered in meeting certain exacting military specifications, and that their recognition of the problem existing with respect to the prior art, helically wound, frusto-conically shaped heads, coupled with a solution thereof, is deserving of patent protection. He specifically singles out as error the board's declaration that, since the claims are unlimited as to size, the disclosure affords no basis for an advantage over the prior art. Appellant urges that, since the exact dimensions are not critical, they do not belong in the claims but rather in a statement of the objects of the invention.

We do not agree with those contentions. The disclosure, as well as the brief, makes it abundantly clear that appellant's invention, if any, lies in *miniaturized* resistors. It is only with respect to them that appellant found peculiar problems, and it is only with respect to them that appellant may have discovered a solution. The claims, however, do not reflect either that invention or appellant's arguments. We are not here concerned with the merits of appellant's invention as it might appear in the disclosure, but are concerned with it only to the extent that the invention is defined in the claims.

Appellant's contention that the problems of miniaturization were not encountered or taught by the prior art is not relevant to the issue before us, since miniaturized resistors are not being claimed. A particular feature upon which an applicant predicates patentability must be recited in the claims; it is not sufficient merely to disclose it in the specification. *In re Lindberg*, 39 CCPA 866, 194 F. 2d 732, 93 USPQ 23.

Appellant has not separately argued the patentability of claims 3, 4, 5, and 12 except for noting the additional

limitations contained in each of these claims. We have considered them all and find they are disclosed by the prior art.

With respect to claim 6, wherein appellant defines the enlarged portions of the head as being "annular lands" and the constricted portion as being "annular grooves," we note that those limitations read on the aforementioned section of the Kohring patent.

The recitation in claim 9, that each head is a "columnar swaged head" has no patentable significance, since swaging the head is admitted by appellant to be old and therefore does not distinguish from the prior art.

The decision is *affirmed*.

AFFIRMED

UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

IN THE MATTER OF THE	) October Term	1962
	)	
APPLICATION OF	) Patent Appeal No.	6914
	)	
HOMER G. THOMSON	) Serial No.	720,845

SMITH, Judge, with whom RICH, Judge, joins, dissenting.

The majority opinion is predicated upon what I consider to be an erroneous analysis of the invention claimed and an erroneous analysis of the prior art.

The invention disclosed and claimed may be fairly stated to be a resistor having a terminal head on the conductor leads so shaped that when it is molded in the high resistance conducting material forming the central body of the resistor, a satisfactory electrical and thermal contact is made and separation of the terminal head from the resistor material is largely eliminated when the resistor is subjected to external forces.

The majority opinion indicates that such features as appellant has disclosed would have an advantage only in the smaller sizes of resistors and properly points out that the rejected claims are not limited to such sizes. The majority does not consider appellant's statement in the specification that:

> The principal object of the present invention is to devise a more satisfactory head; not only to overcome the disadvantages of the frusto-conical head in the very small sizes, *but also to have a better head in even the sizes in which the prior-art frusto-conical head is completely satisfactory*. [Emphasis added.]

The majority correctly states that the board limited its discussion to the Steenweg reference, considering the Bradley reference to be cumulative. The majority, however, then quotes a portion from the board opinion which states the board's erroneous analysis and application of the disclosure of the Steenweg patent. The board stated that:

> * * * However, element 12 of Steenweg has a *restricted portion interposed between two enlarged portions of the head embedded in the resistor composition,* the inner enlarged portion of the head is smaller (note lines 96-98, page 2) and the portions of the enlarged head are embedded in the molded material. * * * [Emphasis added.]

However, as correctly stated by the majority in describing this reference, Steenweg shows a "dumbbell" shaped terminal head associated with a molded tubular resistor element *with the inner enlarged portion of the head embedded in a binding material* which fills the core of the tubular resistor. Steenweg, therefore, while admittedly disclosing a terminal head similar to appellant's claimed terminal head, was not concerned with maintaining electrical or thermal contact between the resistor composition *per se* and the terminal heads through use of the "lop-sided dumbbell" shaped terminal head.

The majority states that the question to be determined is whether the use of the dumbbell shaped head on a "Megow type resistor is fairly suggested by the references" and answers the question affirmatively. I cannot agree. The majority first states that:

> * * * We note that the frusto-conical heads shown in the drawings of the Megow patents are quite similar to the dumbbell shape, since the sides of the conical element, after being pressed into place, are shown to contain a circumferential concavity. That

> cavity appears to function similarly to the groove between the end portions of the claimed head in permitting the thermosetting core material to flow into it, which, after hardening, will tend to prevent axial movement of the terminal member. In view of the similarity between the terminal heads in the Megow patents and the conventionality of dumbbell shaped heads in the art, use of the latter in the Megow type of resistor is considered an obvious choice of terminal head to one skilled in the art. * * *

I do not agree that the "cavity" shown in the Megow patent functions similarly to the groove in appellant's claimed construction. Appellant states in his specification that the prior art terminal heads having a generally frusto-conical shape were unsatisfactory since they failed under "direct load".[1] The reason for the failure of these resistors is stated in the specification as follows:

> Also, because of the wedge-action of the frusto-cone, the direct-load test tends to cause cracks in the body. Contrast the inner enlarged portion 18 of head 17 of the present invention, which without appreciable wedge action, locks under that part of the body which protrudes into groove 22 of the head.

Thus, it is clear to me that the "cavity" of Megow (if such a minute depression can be called a "cavity"), does

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[1]This test is disclosed in the specification as follows:

> The military specification of the Department of Defense of the United States applicable to insulated fixed composition resistors, MIL-R-11B, prescribes the following two rigorous tests:
>
> > 4. 6. 14. 1 **Direct Load.** Resistance shall be measured as specified in 4. 6. 2. Resistors shall then be held by one terminal, and the load shall be gradually applied in the direction of the longitudinal axis of the resistor until the applied load reaches 5 pounds. The 5-pound pull shall be applied for at least 5 seconds. (see 3. 17. 1.)

not function in a way similar to the annular groove in appellant's terminal head. This is because the tapered frusto-conical head shown by Megow, despite the "cavity", still subjects the resistor body to the wedging action which appellant has stated to be the cause of failure of the prior art resistors under the direct load tests.

The Steenweg patent, as pointed out previously, does disclose a terminal head having a shape similar to appellant's claimed terminal head, but is embedded in a "binding cement" rather than in the resistor composition itself. Steenweg, through use of this "binding cement", was not faced with appellant's problem of providing a head having satisfactory thermal and electrical contact with the resistor composition itself and which also would provide a bond of sufficient strength to withstand the direct load test.

I cannot agree that it would have been obvious to one of ordinary skill in the art, at the time appellant made his invention, to substitute the terminal head of Steenweg in a molded resistor of the type shown by appellant. Had such a substitution been so obvious, it would seem that the problem faced by appellant would have been solved. However, as indicated by the affidavit of Zabel, the Allen-Bradley Company, assignee of the present application, has worked to solve these problems "for over the last ten years" and resistors embodying appellant's construction, which meet all military specifications, "are now being manufactured and sold in the regular order of business and have been favorably received by customers whereby these resistors have had and now enjoy a commercial success."

I have no doubt but that the applicant here is entitled to the claims on appeal. However, should any doubts

exist as to the patentability of these claims, such doubts should be resolved in favor of the applicant since the affidavit clearly indicates that applicant's invention is the solution of a long existing problem and has met with commercial success. See *Goodyear Tire & Rubber Co., Inc., et al.* v. *Ray-O-Vac Company,* 321 U.S. 275.

For the foregoing reasons, I would *reverse* the decision of the board.

UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

IN THE MATTER OF THE	) October Term	1963
	)	
APPLICATION OF	) Patent Appeal No.	6914
	)	
HOMER G. THOMSON	) Serial No.	720,845

September 24, 1964

WORLEY, Chief Judge.

This appeal was originally argued January 9, 1963, and majority and dissenting opinions handed down April 25, 1963. A petition for rehearing subsequently filed by appellant was granted and the case set for further argument on December 2, 1963. Pursuant thereto and after consideration of additional briefs filed on behalf of appellant and the Commissioner, the majority opinion of April 25, 1963, is withdrawn and the following is substituted therefor:

Appellant seeks reversal of the Board of Appeals' decision which affirmed the examiner's rejection of claims 1, 3 to 6, 9 and 12 of appellant's application[1] entitled "Composition Resistor With Embedded Terminal Lead Head" as unpatentable over the prior art. Two claims have been allowed.

The invention relates to molded composition electrical resistors of fixed resistance, comprising an elongated cylindrical body of molded thermosetting insulating material having minute conductive particles distributed therein to form a high resistance conducting path. Preferably, an outer portion of plain insulating material surrounds the portion forming the conducting path. Each end of the cylindrical body contains a terminal electrode

[1]Serial No. 720,845, filed March 12, 1958.

consisting of a lead wire with an enlarged head. The latter is embedded in the resistor body in contact with the portion forming the conducting path. The specification states that the principal object of the invention is to devise a more satisfactory terminal head to overcome the disadvantages of the frusto-conically shaped head of the prior art. Applicant states that the latter is particularly unsatisfactory in very small or miniaturized resistors.

Two head designs are disclosed. One construction consists of two enlarged annular portions separated by an annular groove extending completely around the head. The enlarged portion, extending farthest into the resistor body, has a smaller diameter than the outer enlarged portion, while the groove has about the same diameter as the lead wire. In his brief appellant refers to the head as being "dumbell" shaped. That is a fair description if we add that one side of the dumbbell is larger than the other. The second construction shown has a head having a frusto-conical shape, with the constricted or grooved portion defined by two transverse flat grooves on opposite sides of the head.

Claim 1 is representative:

> 1. A molded composition fixed resistor, comprising an integral body, made of moldable insulating material; minute conductor particles distributed throughout at least a portion of said insulating material to form a high-resistance conducting path therethrough; and at each end of said resistance path a terminal electrode, which comprises a lead-wire and an enlarged head, coaxial and integral therewith, the head being intimately embedded in the body in intimate conductive contact with the resistance path portion of said body; wherein each head comprises an inner enlarged portion, an outer enlarged portion, and a constricted portion between

the two enlarged portions, the outer face of the outer enlarged portion being exposed through and flush with a face of the body and constituting an outwardly facing shoulder of the terminal electrode; all of the head inwardly from the exposed portion of the head being in intimate supporting contact with the body.

The examiner relied on the following references:

Bradley	1,835,267	December 8, 1931.
Steenweg	1,976,901	October 16, 1934.

As "background art" the board added:

Megow et al.	2,271,774	February 3, 1942.
Kohring	2,597,338	May 20, 1952.
Patla	2,698,372	December 28, 1954.

The Steenweg patent discloses cylindrical resistors mounted on spark plugs. The most pertinent part of that reference shows a resistor unit comprising a molded tubular resistance element with terminals which engage the element at each end, and are embedded in an insulating binding cement within the element. The portion of the terminal element projecting into the cement has an annular groove interposed between two enlarged portions of that element.

The Bradley patent was considered cumulative by the board. Since we shall not rely on it, it requires no discussion, nor does the Patla reference of which the board made no particular use.

Kohring discloses electrical resistors made of cylindrical ceramic shells having resistance cartridges inside. The resistance cartridge comprises a ceramic core on which there is a resistance element made of "spiral convolutions of hard carbon as cut in a coating formed in situ." The ends of the resistance element are connected at each end to metal terminals which are anchored in the

cores. Various shapes for terminals are shown, including one defined by the patentee as having "transverse or circular fins." That element may be described as being dumbbell shaped.

The record before us includes three Megow et al. patents. Two are referred to in appellant's specification[2] as describing processes by which the resistors of the present invention, except for the head, may be made. The third patent was cited by the board as "background art." It discloses molded electrical resistors consisting of an insulating sleeve of thermosetting material, a conducting core made of conductor particles dispersed in a thermosetting binder, and wire terminals at each end. The terminals have a shank or lead wire portion and an integral, generally frusto-conical head. The latter is shown in the drawings to be embedded entirely in the conducting core portion of the resistor body, with the narrower outer portion of the head flush with the end of the molded cylinder body.

The exact manner in which the references are relied on is somewhat obscured by the fact the board did not expressly combine them. The board gives the following resume of the examiner's rejection:

> The Examiner has rejected the claims as unpatentable over either Bradley or Steenweg. Although the Examiner has not given a detailed discussion of the references and the application thereof to the claims, it is evident that he considers the basic feature of the claimed resistor as anticipated by the resistors disclosed in the cited art.

In our opinion, that evaluation is most generous in view of the obvious shortcomings of the examiner's answer.

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[2]U. S. Patent No. 2,261,916, issued Nov. 4, 1941, and U. S. Patent No. 2,302,564, issued Nov. 17, 1942.

The board found the claimed resistors to be of the type shown by Megow et al., Kohring, and Patla, as well as the Megow et al. patents referred to in appellant's disclosure. It was of the opinion that the essence of the alleged novelty in the combination claimed is found solely in the shape of the enlarged head. Considering the Bradley reference to be cumulative, the board limited its discussion to the Steenweg patent, wherein it found the terminal element of a resistor unit having "a restricted portion interposed between two enlarged portions of the head embedded in the resistor composition," with the inner enlarged portion of the head smaller, and portions of the outer enlarged portion embedded in the molded material. The board concluded, "consideration of the background of the asserted invention and the improvement over the admitted state of the art leads us to the conclusion that the claims do not patentably differentiate over the art before us."

We agree with appellant that the issue is one of obviousness within the meaning of 35 U.S.C. 103.

Appellant's specification states:

> In spite of the difference of the head * * * from the frusto-conical head of the prior art * * * the resistor of the present invention may be made by the process shown and described in Patent No. 2,302,564 * * *. Or, if the entire body be made of resistor material, as suggested herein for extremely small resistors, the resistor may be made by the process shown and described in United States Patent No. 2,261,916 * * *.

In view of that statement, as well as our evaluation of the three Megow patents, it is clear that the sole difference between the claimed resistors and the prior art lies in the particular shape and structure of the terminal

head on the lead wires. The immediate question, therefore, becomes whether a terminal head such as claimed by appellant is disclosed in the prior art, and if so, whether its use in a resistor such as claimed is suggested by the prior art. We think both questions must be answered affirmatively.

The only limitation in claim 1 which is not taught by the Megow patents defines the head as comprising "an inner enlarged portion, an outer enlarged portion, and a constricted portion between the two enlarged portions," i.e. having the shape of an uneven sided dumbbell with the end having a smaller diameter extending inwardly into the body of the resistor. In our opinion, resistor terminal elements of the shape defined by claim 1 are clearly disclosed by Steenweg and also Kohring. That neither of those references discloses resistors *identical* to those of the Megow type we deem of little importance. What is significant is the teaching that in the electric resistor art dumbbell shaped metal terminal members are conventional. Each reference also shows the end with the smaller diameter to be inward.

The use of dumbbell shaped terminal elements being old in the art, we are faced with the question whether the use of such elements in resistors of the type shown by the Megow patents is fairly suggested by the references. We think it is. The frusto-conical heads shown in the drawings of Megow embody one shape which resists longitudinal movement after the thermosetting material hardens about the head, while the heads of dumbbell shape likewise resist such movement. In view of the obvious similarity in function between the terminal heads in the resistors of the Megow patents and the conventional dumbbell shaped head employed in the resistor art, use of the latter in the Megow type resistor

is considered an obvious choice of terminal head to one skilled in the art. It is apparent that the Megow type resistor, modified as indicated, meets every limitation set forth in the appealed claims.

Appellant argues primarily that with *miniaturized* resistors considerable difficulty was encountered in meeting certain exacting military specifications, and that his recognition of the problem existing with respect to the prior art, helically wound, frusto-conically shaped heads, coupled with a solution thereof, is deserving of patent protection. He specifically singles out as error the board's declaration that, since the claims are unlimited as to size, the disclosure affords no basis for an advantage over the prior art. Appellant urges that, since the exact dimensions are not critical, they do not belong in the claims but rather in a statement of the objects of the invention.

We do not agree with those contentions. The disclosure, as well as the brief, makes it abundantly clear that appellant's invention, *if any,* lies in *miniaturized* resistors. It is only with respect to those that appellant found peculiar problems, and it is only with respect to those that appellant may have discovered a solution. The claims, however, do not reflect either that invention or appellant's arguments. We are not here concerned with the merits of appellant's invention as it might appear in the disclosure, but are concerned with it only to the extent that the invention is defined in the claims.

Appellant's contention that the problems of miniaturization were not encountered or taught by the prior art is not relevant to the issue before us, since miniaturized resistors are not being claimed. A particular feature upon which an applicant predicates patentability must

be recited in the claims; it is not sufficient merely to disclose it in the specification, *In re Lindberg*, 39 CCPA 866, 194 F. 2d 732, 93 USPQ 23.

Appellant has not separately argued the patentability of claims 3, 4, 5, and 12 except for noting the additional limitations contained in each of these claims. We have considered them all and find they are disclosed by the prior art.

With respect to claim 6, wherein appellant defines the enlarged portions of the head as being "annular lands" and the constricted portion as being "annular grooves," we note that those limitations read on the aforementioned section of the Kohring patent.

The recitation in claim 9, that each head is a "columnar swaged head" has no patentable significance, since swaging the head is admitted by appellant to be old and therefore does not distinguish from the prior art.

In his petition for rehearing and his brief on rehearing, appellant argues that reference in the original opinion to the Megow drawings as showing a small concave depression extending around the head is improper because that construction of the Megow patents was not previously raised or discussed. Assuming, without deciding, that appellant is correct in that contention, the matter is moot since it should be clear that we have given no consideration to that aspect in concluding that the appealed claims are unpatentable.

The decision is *affirmed*.

AFFIRMED

UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

IN THE MATTER OF THE	) October Term	1963
	)	
APPLICATION OF	) Patent Appeal No.	6914
	)	
HOMER G. THOMSON	) Serial No.	720,845

September 24, 1964

RICH, Judge, dissenting.

This opinion is in two parts. PART I is an opinion in the usual form developing the facts and issues as I see them, in more detail and I hope more accurately than does the majority opinion, and explaining the basis on which I believe the rejection should be reversed.[1] PART II states the grounds on which I consider the majority opinion to be untenable regardless of the result reached.

PART I

This appeal is from the decision of the Patent Office Board of Appeals affirming the rejection of claims 1, 3-6, 9, and 12 of application serial No. 720,845, filed March 12, 1958, for "Composition Resistor with Embedded Terminal Lead Head." Claims 10 and 11 were allowed.

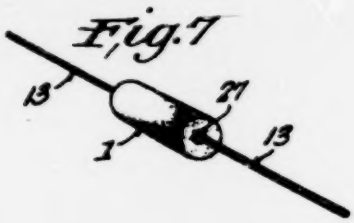
Background of the Invention

The invention relates to small molded fixed resistors of the type used as basic components in radio and TV sets and other electronic circuits. More particularly, the

[1] Judge Smith authorizes me to say that where I have used the first person plural "We" or "Us" in Part I it may be assumed to refer to both of us.

invention is an improvement in the type known as "end-molded resistors" which have easily bendable lead wires extending from each end by which the resistors are connected into circuits. The application at bar is assigned to Allen-Bradley Company, a manufacturer of such resistors in great volume, which owns other patents relating to their manufacture including two Megow and Thomson patents, No. 2,261,916 and No. 2,302,564, which are referred to in the specification as showing methods for making the resistors embodying the instant invention. Appellant was the coinventor with Megow in these patents. It will facilitate an understanding of the invention to explain how the resistors are made, using for illustration some drawings from Megow et al. '916.

Fig. 7, below, shows a molded resistor having a body 1 and easily bendable lead wires 13. At 27 one sees the outer smaller end of a frusto-conical head which is buried in the body and forms a shoulder with wire 13.



The fixed electrical resistance is an inherent characteristic of the body which is molded from a homogenous mixture of thermosetting resin binder such as phenol-formaldehyde, carbon black as a high resistance conductor in the form of fine particles, and a filler such as ground quartz. These materials are thoroughly blended and made into a blank or preform in which the resin

is in only a partially set condition. Figs. 4, 5, and 6 below show how wire terminals are attached to and integrated with the body blank, simultaneously with the complete setting of the resin by heat, to form the resistor of Fig. 7 which is thereafter covered with insulating paint and identifying markings.[2]

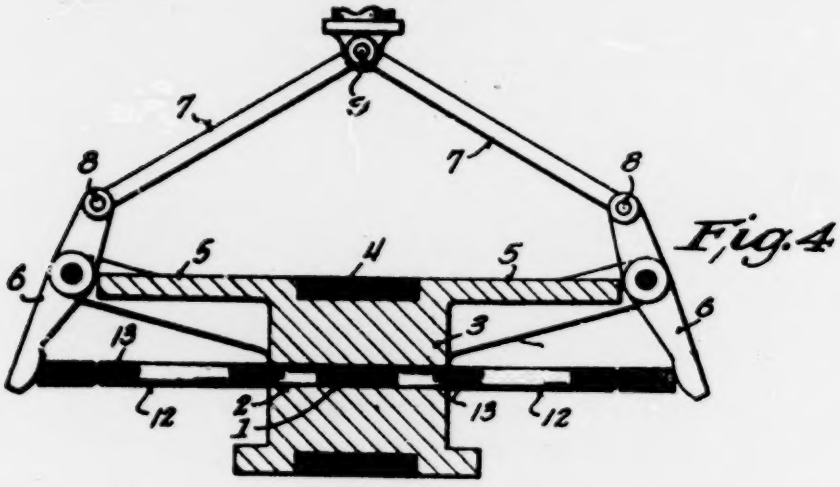


Fig. 4

Figs. 4 and 5 are elevations, partly in section, of the same apparatus in different positions. A recessed die 3 having a cylindrical horizontal chamber 2 is heated by a coil 4 to an appropriate resin-setting temperature. In chamber 2 a resistor body blank 1 is positioned. The blank shown is a preform with shallow openings in its end but their use is optional. Electrode-carrying plungers 12 are shown in

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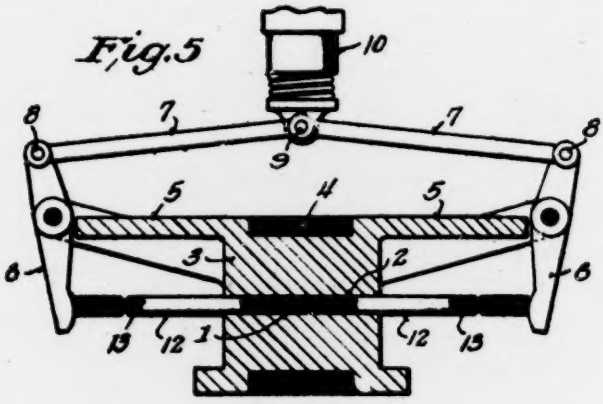
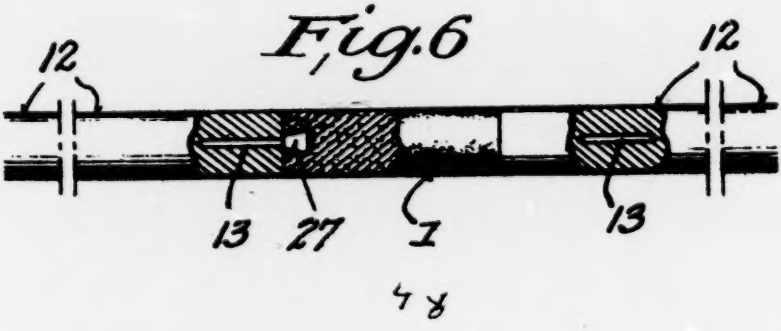
[2]In another form of the resistor, usually the larger sizes, an insulating tubular sleeve of thermosetting resin containing no carbon may surround the conductive body, in which case no painting is necessary except for the identifying markings. We need not consider this type, the making of which is described in Megow et al. No. 2,302,564, since the invention before us is applicable to either type but more particularly the one we are describing which is best adapted to resistors of smallest size.





4 8

Fig. 4 just entering chamber 2 and carrying lead wires 13 having frusto-conical heads, the outer smaller shoulders of which are engaged by plungers 12. Rocker arms 6,6 are moved by toggle links 7,7 when pivot 9 is moved downwardly by presser foot 10 to press plungers 12 against heads 27 and the ends of blank 1 with equal force. The only agency limiting the movement of the plungers is the volume of blank 1.

An example is given by Megow et al. of a 100,000 ohm resistor whose blank weighs 0.165 gm. made in a chamber of 0.14" diameter at a temperature of 425° F. and a pressure of 20,000 pounds per square inch applied intermittently at 3-second intervals for ½ second three times, after which the resistor remains in the mold 30 seconds and is then removed with the plungers which are stripped from the wires 13, yielding the finished resistor as shown in Fig. 7.

Fig. 5 shows the pressure being applied and Fig. 6 shows the resistor and plungers, both partly in cross-section, removed from the mold. The terminal lead head is seen at 27 embedded in the body 1 with its outer shoulder flush with the end of the body and abutting the end of the plunger which has pushed it into the body with great force, which force has also served to compact the material of the body solidly around the head. The inner end of the head having a greater diameter than the outer end, the compressed and molded body grips the head firmly. It will also be observed, however, that an axial pull tending to withdraw the head will cause it to exert a wedging action on the body due to the conical shape which tends to crack the body.

In resistors of the above-described type the head performs several functions. It anchors the lead wire mechanically. It makes electrical contact with the conductive particles in the body. When current passes through the resistors it generates heat in them and the metal head also serves to conduct that heat away, through the highly heat-conductive lead wire. In this connection it is useful to note that resistors are rated in watts according to the current they can withstand without overheating, the size increasing with the wattage and vice versa, common sizes being 2, 1, and ½ watt.

Turning now to appellant's specification, it states the background of and reason for the invention as follows:

> In the most successful devices of this sort in the prior art, the head is frusto-conical, with the lead-wire integrally attached to the smaller end of the head, this smaller end being wider than the lead-wire, thus forming a shoulder, which shoulder is exposed at or about the surface of the body.
>
> These prior art resistors have proved highly satisfactory in the past. But recently there has arisen a demand for smaller and smaller resistors of this sort. With these smaller resistors, the prior art frusto-conical head and its cooperation with the body of the resistor are not so satisfactory.
>
> As an illustration of this trend to smaller and smaller resistors, it should be noted that there is already a demand for a 1/10 watt resistor, with a body 0.140" long and 0.067" in diameter, and with lead-wires 0.015" in diameter.
>
> The principal object of the present invention is to devise a more satisfactory head; not only to overcome the disadvantages of the frusto-conical head in the very small sizes, but also to have a better head in even the sizes in which the prior-art frusto-conical head is completely satisfactory.
>
> Another object of the present invention is to provide a head which resists rotation with respect to the body.

As an example of requirements which must be met to provide a satisfactory resistor, the application quotes from the specifications of the Department of Defense of the United States as follows:

> 4. 6. 14. 1 *Direct Load.* Resistance shall be measured as specified in 4. 6. 2. Resistors shall then be held by one terminal, and the load shall be gradually applied in the direction of the longitudinal axis of

the resistor until the applied load reaches 5 pounds. The 5-pound pull shall be applied for at least 5 seconds. (See 3. 17. 1.)

4. 6. 14. 2 *Twisting.* Following the test specified in 4. 6. 14. 1, terminals shall be bent through 90° at a point ¼ inch from the body of the resistor, with the radius of curvature at the bend approximately 1/32 inch. The terminals shall be clamped to within 3/64 ± 1/64 inch of the bend on the side between the bend and the remaining portion of the lead, away from the body. The body of the resistor shall then be rotated about the original axis of the bent terminal through 360° in alternating directions for five such 360° rotations at the rate of approximately 5 seconds per rotation. Measurements of resistance shall again be made after completion of the test. (See 3. 17. 2.)

3. 17. 1 *Direct Load.* When resistors are tested as specified in 4. 6. 14. 1, resistor terminals shall withstand a pull of 5 pounds without mechanical damage.

3. 17. 2 *Twisting.* When resistors are tested as specified in 4. 6. 14. 2, the resistance shall not change in excess of 1 per cent or 0.5 ohm, whichever is greater, nor shall there be any evidence of breakage or other mechanical damage.

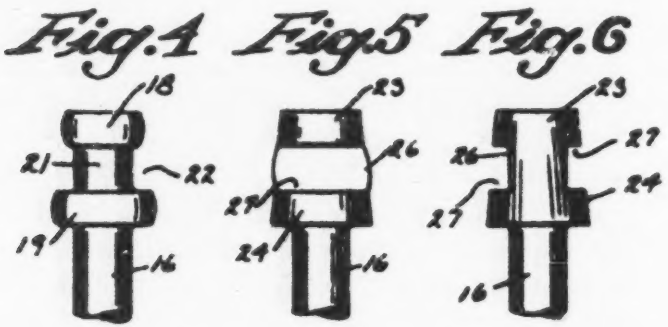
An affidavit of an electrical engineer engaged for 28 years in the development and manufacture of molded resistors with appellant's assignee states that the frusto-conical heads of the prior art are not satisfactory for resistors of the now commercially available 1/10 watt size (dimensions above) and ¼ watt size (0.25" body length and 0.091" body diameter) for reasons stated including factors known to those skilled in the art which do not appear from the face of the bare patent disclosures. For example, it appears that the frusto-conical head which is formed on the end of a piece of solder-coated

wire is created commercially by a swaging process which first forms an end section of wire into a helix of about 3 turns and then compacts the helix into the frusto-conical shape. It appears that in small sizes there is a tendency for the helix to unwind under load tests, for the head to bulge under molding pressures resulting in a loss of conical shape and gripping power, and that providing enough working surface on the small end for proper engagement by the molding plungers makes the larger end so big as to weaken the body of the resistor and prevent adequate flow of material around the head during molding. Thus the frusto-conical head being unsatisfactory, a problem existed requiring the development of a new head. The affidavit states that the problem had been worked on at Allen-Bradley Company for over ten years and was solved by Thomson's present invention, which has gone into successful commercial use in the 1/10 and ¼ watt size resistors. It would seem, then, that a useful art has actually been advanced by this invention. We do not proceed on the assumption that it took ten years to make this advance, which seems unlikely, but on the basis that there *is* an advance resulting from a change in construction, now sought to be patented, making possible that which was not before possible with the old construction.

The Invention

Appellant's invention does not require much description for it is simple, involving a new configuration for the head on the lead wire and its formation in a manner different from that previously used. The head configuration will be clear from the following figures from appel-

lant's drawings, showing two embodiments of the invention:



In each figure, 16 is the lead wire, Fig. 4 showing one form of head formed on its end and Figs. 5 and 6 together showing the other form, in views taken at right angles to each other, allowed claims 10 and 11 being limited to the latter form. The appealed claims are either generic to both forms or specific to the Fig. 4 form.[3]

Utilizing the terminology of the claims and referring to Fig. 4, the head has an inner enlarged portion 18, an outer enlarged portion 19, and a constricted portion 21 formed by a groove 22 between the two enlarged portions, in the finished resistor the outer face of the outer enlarged portion 19 being exposed through and flush with the face of the body and constituting an outwardly facing

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[3]Allowed claim 10 is identical with appealed claim 1 except for the addition of the words: "wherein the constricted portion of the head is flattened to enable the head to resist turning with respect to the body."

Claim 11 likewise is identical with claim 1 with words added to the end limiting it to the head shape of Fig. 6, namely, "wherein the head is a frusto-cone, the larger end thereof being axially disposed with respect to the lead-wire and integrally attached to one end thereof, and wherein the constricted portion of the head is defined by two opposite transverse lateral grooves."

shoulder of the terminal electrode, all of the head inwardly from the exposed portion of the head being in intimate supporting contact with the body. In the modification of Figs. 5 and 6, there is an inner enlarged portion 23, an outer enlarged portion 24, which are frusto-conical, with a constricted portion 26 defined by two opposite transverse flat grooves 27. It is to be noted that insofar as either head partakes of the frusto-conical form or outline, it is the reverse of that previously used in end-molded resistors, the smaller, rather than the larger, end being innermost. So much for mere form.

With respect to function, the specification says:

> * * * because of the wedge-action of the frusto-cone, the direct-load test tends to cause cracks in the body. Contrast the inner enlarged portion 18 of head 17 of the present invention, which without appreciable wedge action, locks under that part of the body which protrudes into groove 22 of the head.

It is pointed out that any loosening of the heads or any cracks, even though so slight as to be unobservable, are apt to change appreciably the electrical characteristics of the resistor.

A particular method of making these heads is described in the specification, differentiating from the old method by which the frusto-conical heads were made wherein a *single-stroke* punching (or swaging) operation first formed the helix which was then compacted into a head. In the present invention the heads are described as "columnar" and as made by "multiple-stroke swaging." The specification gives the following definition and explanation:

> A "columnar" head is one formed by swaging without twisting that part of the wire or other stem which goes to form the head: in other words a swaged head with no latent helix.

> The twisting test tends to unwind the latent helix of the prior art. The direct-load test tends to enhance this effect. The smaller the resistor, the harder to meet is the direct-load test. Even bending the wire in the course of installation may loosen the helix. The head of the present invention, having no latent helix, avoids these effects.

There is no contention that any reference contains a disclosure of such a columnar swaged head.

The Claims

Claim 1 reads as follows:

> 1. A molded composition fixed resistor, comprising an integral body, made of moldable insulating material; minute conductor particles distributed throughout at least a portion of said insulating material to form a high-resistance conducting path therethrough; and at each end of said resistance path a terminal electrode, which comprises a lead-wire and an enlarged head, coaxial and integral therewith, the head being intimately embedded in the body in intimate conductive contact with the resistance path portion of said body; wherein each head comprises an inner enlarged portion, an outer enlarged portion, and a constricted portion between the two enlarged portions, the outer face of the outer enlarged portion being exposed through and flush with a face of the body and constituting an outwardly facing shoulder of the terminal electrode; all of the head inwardly from the exposed portion of the head being in intimate supporting contact with the body.

Claims 3-6 are dependent claims adding various limitations. Claim 9 is an independent claim identical with claim 1 through the words "wherein each head" from which point it concludes as follows:

> * * * wherein each head is a *columnar swaged* head, forming an outwardly facing shoulder with the lead-

wire, said shoulder being exposed through and flush with the end face of the body; all of the head inwardly from the exposed portion of the head being in intimate supporting contact with the body. [Our emphasis.]

Claim 12 was accurately characterized by the examiner to be a restatement of claim 1 in different terminology, though we would not speculate that the two claims would be adjudged to be of identical scope for the very reason that the terminology is different.

The Rejection

The examiner's rejections of record and his answer cite and rely upon only the following two references:

Bradley	1,835,267	Dec. 8, 1931
Steenweg	1,976,901	Oct. 16, 1934

His ground of rejection is somewhat obscure but we will accept the board's construction of it which was that the claims are "unpatentable over either Bradley or Steenweg," which we assume to be a rejection for obviousness. The board said the examiner considered the "basic feature of the claimed resistor" to be "anticipated" by the cited art. The board found that "the rejection is without reversible error" but did not rest with affirming it as made. In its first opinion it added three patents not cited by the examiner, referring to them as "background art," as follows:

Megow et al.	2,271,774	Feb. 3, 1942
Kohring	2,597,338	May 20, 1952
Patla	2,698,372	Dec. 28, 1954

The Megow et al. patent is not one of those referred to in appellant's specification but is very similar to the '564 patent. The board started its opinion with the ob-

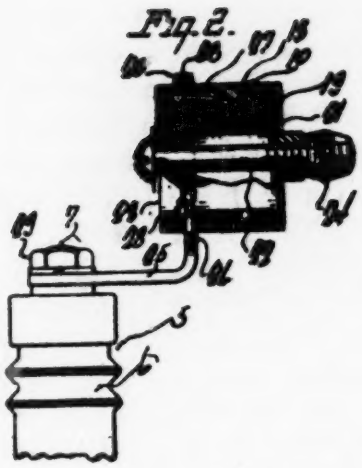
servation that appellant's resistors "are of the type generally shown by Megow et al., Kohring, and Patla above cited as well as the Megow et al. patents referred to by appellant in his disclosure." We do not agree with this observation with respect to Kohring and Patla but need not discuss it. Appellant's own reference to the two other Megow et al. patents suffices to show the general type of resistor involved. The added background references add nothing to that.

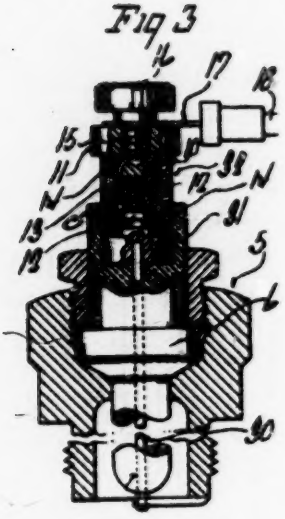
The board then said it regarded the disclosure of Bradley as merely "cumulative" to that of Steenweg and devoted the balance of its opinion mostly to discussing the latter reference, concluding:

> Consequently, a consideration of the background of the asserted invention and the improvement over the admitted state of the art leads us to the conclusion that the claims do not patentably differentiate over the art before us.

Considering all circumstances, it appears to us that the board's view was that the claims are unpatentable because they define inventions which are improvements in the Megow et al. type of resistors which would be obvious in view of the disclosure of Steenweg. We therefore direct our attention to that reference.

Steenweg, a patent also issued to Allen-Bradley Company in 1934, shows a type of resistor once used in conjunction with automobile sparkplugs in the early days of auto radio (the application was filed in 1929). Figs. 2 and 3 will suffice for discussion and are here reproduced.





The resistors were attached to the sparkplugs to suppress ignition noises in the radio receiver. Alternatively they were to be built into sparkplugs. Fig. 2 shows one attached type wherein 5 is the sparkplug with porcelain insulator 6 and metal terminal 7. A hollow tubular resistance element 10 is secured to a metal angle-bracket 20 by means of a threaded bolt 22 extending through an insulating washer 23 and a metal plate 19. Threaded terminal 24 screws on the bolt as a nut and serves as the terminal for the sparkplug cable. The only use made of this structure by the board with reference to appellant's claim is in its statement that element 20, the bracket, "would be suggestive of the use of a lead wire." Comparing Fig. 2 of Steenweg with Fig. 7 at the beginning of this opinion illustrates, we think, that the board was straining unduly to find non-existent similarities between

appellant's resistor structure and that of the reference, which is of an entirely different type.

Turning to Steenweg's Fig. 3, we get to the crux of this case. Therein we find the same type of molded hollow tubular resistance element 10, again clamped between a pair of members 11 and 31 which are "in intimate engagement with the adjacent end[s] of the resistance element." Here we have an alternative to the bolt 22 and insulating washer 23 of Fig. 2 for holding these end-terminals in contact with the tubular resistor. It is described as follows:

> * * * the terminals [11, 31] each having a central projection 12 to snugly engage the bore 13 of the unit. The innermost ends of the projection[s] 12 are reduced and provided with annular grooves 14, which with the remaining space within the resistance element are completely filled with a binding cement C composed essentially of asbestos and a phenol composition product which being an insulating composition does not in any way affect the resistance value of the element 10, but serves to maintain the terminals 8 [or 31] and 11 in intimate contact with its ends.

This is the disclosure upon which the examiner and the board relied to support the rejection. Fig. 1 of Steenweg, which we have not discussed, is like Fig. 3 except that the resistor is not built into the sparkplug. Instead it is made a separate unit, as is the resistor of Fig. 2. It resembles the resistor of Fig. 3 in form and the bottom terminal 8, corresponding to 31, is provided with a threaded bore extending into the projection 12 by means of which the resistor can be screwed onto the usual threaded post on the top of a sparkplug, avoiding the need for any bracket such as 25 in Fig. 2.

Appellant has characterized the metal end-terminals of Steenweg's resistors as "a hardware item produced

from bar stock by a screw machine process" and argued that they bear little if any relation to the problems of attaching headed wire terminals in end-molded resistors, especially small ones wherein the problem existed. The characterization seems to us to be accurate and the argument to be sound, particularly in the solving of the problems which existed in the making of end-molded resistors in the very small 1/4 and 1/10 watt sizes. Inserting terminals into such resistors with their diameters of .091" and .067", respectively, by end-molding processes does not seem to us to bear any real lation to inserting terminals into the Steenweg tubular resistors of the Fig. 3 type considering their diameters, which must have been of the order of 3/8 to 1/2 inch, by purely mechanical parts-assembly methods not concerned with molding, and securing them, moreover, with a filling of insulating cement rather than by molding the resistor composition around them. In Steenweg the tubular resistor is all made when the terminals are affixed to it.

Although the board did not discuss Bradley, which it considered to be merely cumulative to Steenweg, since the examiner relied on that reference in the rejection which the board affirmed we think it should be mentioned briefly. The resistor of that patent, the application for which was filed in 1925, was a relatively large molded article with metal end caps adapted to various forms of connection in circuits. Like Steenweg, all forms of caps are screw-machine products, made of brass or the like by turning, threading, counterboring and similar procedures, the diameter of the caps being the same as or greater than the diameter of the resistor bodies. There is no disclosure of a terminal formed on the end of a lead wire.

After giving much study to the grounds of rejection *as stated* by the examiner and by the board we think it would only confuse matters to discuss them. They were never precisely stated nor were the statutory grounds of rejection made clear. We know what the legal issue must be under the statute, regardless of what was said, and we will simply go to the point. Was the invention, as defined in the rejected claims, one which would have been obvious to one of ordinary skill in the art of making end-molded resistors with wire terminal leads as of the time the invention was made (herein taken to be the filing date of the application) in view of the disclosures of the acknowledged Megow et al. patented prior art taken with the disclosures of either Steenweg or Bradley? We think not. Neither Steenweg nor Bradley is in any way concerned with forming anchoring heads on the ends of lead wires nor with the problem of injecting them into resistor body blanks in the kind of machinery used to make such resistors. The most that can be said is that one can find in those two patents, when one is led for some reason (such as appellant's application disclosure) to go look for it, one or more grooves cut on a stud buried in cement or in a molded body to help anchor it therein. In our opinion that is not enough.

Due to the great disparity in the types of construction involved in the Megow et al. patents, on the one hand, and in the Steenweg and Bradley patents which have been deemed below to make obvious appellant's modifications in the Megow et al. type of resistors, on the other hand, we think there is no suggestion in either group of references to combine their disclosures with the others. *In re Hortman*, 46 CCPA 814, 264 F. 2d 911, 121 USPQ 218. The situation here seems to us of the type we dealt with

in *In re Herrmann,* 47 CCPA 975, 278 F. 2d 527, 126 USPQ 59, wherein we said:

> Hall was not confronted with the problems which have been solved by appellant.
>
> While the change made by appellant seems, in retrospect, to have been comparatively simple, we do not feel that it can properly be said to have been obvious within the meaning of 35 U.S.C. 103. In view of the substantial differences between the construction and operation of the Lind and Hall engines, it is not likely that the latter would have been looked to for suggestions in solving problems arising in the former. Under such circumstances it becomes necessary to reverse the decision appealed from.
>
> The decision of the board should be *reversed.*

PART II

The foregoing shows, I think, that the majority was not compelled to affirm by the evidence in the record. It also shows, I believe, that there are many factors bearing on the obviousness issue which the majority has not considered or, at least, not discussed.

What I now propose to show is that the majority affirms in large part on grounds never stated in the Patent Office.

Men may reasonably differ on the issue of obviousness in view of the prior art and I have stated my views above. But in this court anyone's judgment on obviousness *must* be based, under 35 U.S.C. 103, on what the references show *to one skilled in the art* and, under 35 U.S.C. 142, 143, and 144 and general principles of appellate procedure, on a *review* of rejections *actually made by the Patent Office.* We are not at liberty to make new rejections. In my opinion, the majority has clearly done that.

Appellant, in his Brief on Rehearing (39 pages) has more than adequately pointed out the matters discussed below, notwithstanding which the majority has found only one point of error in its original opinion. While the majority might be conscientiously able to find no error in its *decision* that the claimed invention would have been obvious, I cannot see how that view can be retained as to its new *opinion,* any more than as to its original opinion, in view of what appellant has brought to the court's attention.

I think a fair reading of the majority opinion shows that the decision that the claimed subject matter is obvious proceeds according to the following argument: 1. The novel *feature* of the claim is the shape of the head on the wire terminal which is that of a dumbbell with the inner "side" smaller than the outer. 2. The Steenweg patent shows a terminal element in a resistor which projects into an insulating binding cement and has a groove between two enlarged portions. 3. The Kohring patent discloses a dumbbell-shaped terminal in a resistor. 4. The Megow et al. patents show frusto-conical terminal heads embedded entirely in the conducting core of the resistor body. 5. Dumbbell-shaped metal terminal members are, therefore, "conventional" in the resistor art. 6. The Megow et al. frusto-conical heads resist longitudinal movement and so do the heads of dumbbell shape, so there is "obvious similarity in function" between the Megow heads and the "conventional dumbbell shaped head[s] employed in the resistor art."

Based on the foregoing assumed facts, the majority then reached its conclusion in the following words:

> In view of the obvious *similarity in function* between the terminal heads in the resistors of the Megow patents and the *conventional* dumbbell shaped head

employed in the resistor art, use of the latter in the Megow type resistor is considered an *obvious choice* of terminal head to one skilled in the art. It is apparent that the Megow type resistor, modified as indicated, meets every limitation set forth in the appealed claims. [Emphasis mine.]

Appellant justifiably pointed out that this is a rejection (originally stated in slightly different words) on a ground never used by the Patent Office, citing our decision in *In re Kalter*, 50 CCPA 1191, 316 F. 2d 747, 137 USPQ 347, in support of the contention that we are without authority to make such a rejection. In that case the majority opinion by Judge Almond stated the well-established rule as follows:

> We are without authority to advance new grounds of rejection, but are limited to deciding the issues before us.

The rule is not only based on fundamental principle but is one of very long standing in this court. In *In re Mooney*, 25 CCPA 1269, 97 F. 2d 144, 37 USPQ 736 (1938), the court said:

> We are not at liberty to affirm the decision of the Board of Appeals upon the ground urged by the Solicitor, above quoted, for such ground of rejection was not relied upon either by the examiner or the Board of Appeals. *In re Tucker and Reeves*, 19 C.C.P.A. (Patents) 810, 54 F. (2d) 815.

And in the *Mooney* case the court pointed out that had the ground urged by the solicitor been assigned by the board it might have been inclined to affirm such ground. In the leading *Tucker and Reeves* case the court granted a rehearing to consider the question:

> • • • was it proper for this court to affirm the action of the Board of Appeals and the examiner in rejecting the claims *on grounds other than the grounds*

> *of rejection set out and relied upon by the lower tribunals?* [My emphasis.]

It concluded:

> We feel, therefore, constrained to hold that even if the board's rejection of the claims involved is regarded as proper, when reasons other than those assigned by it are considered, we would not be justified in affirming such action on such grounds.

It withdrew so much of its former opinion as was not limited to the grounds relied upon by the board. In *In re Sebald,* 31 CCPA 1148, 143 F. 2d 366, 62 USPQ 90 (1944), the court said:

> In *In re Tucker and Reeves* * * * we originally held that we had an inherent power equivalent to that exercised by courts in other jurisdictions to affirm a decision appealed from if it was right for any reason. Our holding there that we might affirm a decision of the Patent Office Board of Appeals upon *grounds other than those applied by the Patent Office tribunals* attracted great interest among members of the patent bar. Rehearing was granted * * *. Upon due consideration * * * we * * * came to the conclusion that [our] * * * former decision was 'extrajudicial' and that it should be withdrawn. Our holding in *In re Tucker and Reeves* * * * has become the settled law of this court, and we have seen no disposition on the part of Congress to broaden our jurisdiction in this respect. [My emphasis.]

So much for the law. I turn to consideration of the new grounds on which the majority's rejection here rests.

In order of appearance, the first new finding of the court relied on appears in connection with the Kohring patent. (Item 3, supra, in my analysis.) As my opinion, PART I, shows, the examiner *never mentioned* Kohring.

The board was the first to cite it and every word it said about it appears in the sentence:

> The resistors are *of the type* generally *shown by* Megow et al., *Kohring,* and Patla above cited as well as the Megow et al. patents referred to by appellant in his disclosure. [My emphasis.]

It is worth looking at the Kohring disclosure for two purposes: (1) to show that *even what the board says is not so* and (2) to make it clear beyond peradventure that *the use made of it by the majority is new and entirely different from any use made of it by the board.* I here reproduce the relevant figures of Kohring's drawings.

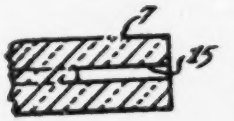


Fig. 7

Fig. 8

Fig. 9

Fig. 10

Fig. 11

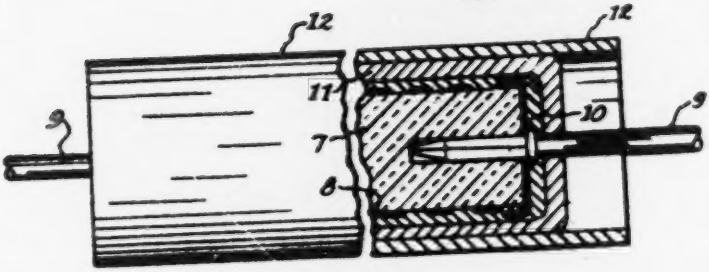


Fig. 5

Referring to the above figures collectively, the relevant portion of the specification states (my emphasis):

> The detail structure of resistance cartridge involves a core or *ceramic body* 7 on which is a resistance

element 8 * * * this being in *spiral convolutions of hard carbon* as *cut in* a coating formed in situ. And connecting the end of the resistance element to the terminal 9 is a metal layer 10 which may be from an applied metal coated on or may be a pressed-on end cover. This assures firm union with both resistance element and terminal. A casing or cover 11 of insulating plastic * * * is molded onto and over the resistance and core such as to completely envelop and protect. * * * Desirably, a flexible sleeve 12 is then slid over the plastic casing 11 * * *. Where paper is employed, * * * such sleeves may be initially in flattened or compressed form, as shown at Fig. 11 * * *. As illustrated in Fig. 5, thus the sleeve envelops the enclosed encased resistance and affords protection about the end portions. * * *

The *ceramic core 7* * * * may have a central bore, or at least at each end an open *bore 15 molded or drilled,* and within which the *terminal 9 is axially driven or pressed,* to hold by surface deformation. Thus, the terminal as of tinned copper may be of non-circular cross-section, for instance squared as in Fig. 8, or triangular in section as in Fig. 9, or with transverse or circular fins as in Fig. 10, or of other desired form which is non-circular, whereby on being *axially driven into the bore* there is sufficient *deformation in the contacting surfaces* to seize and hold. Desirably, the entering end of the terminal is tapered to a smaller diameter, to facilitate entry.

In other words, the terminals are driven like nails into preformed bores in a *hard ceramic core,* hard enough to distort the metal, whatever shape it may be, in order to grip it. The metal terminal is deformed in the bore. Nothing is molded around it. It grips *by friction* in a hole by engaging its wall. Mere reading of the foregoing is enough to show that the board was wrong in saying that Kohring's resistor is of the general type of ap-

pellant's end-molded, plastic binder and carbon particle resistors.

Now as to what the majority did with this reference, instead of using it merely as an indication that end-molded resistors were old as a *type*, as did the board (even though Kohring is *not* of that type), it found Fig. 10 in the disclosure of Kohring and then proceeded to rely on *it* to support a contention *never made* by the Patent Office, namely, that dumbbell-shaped terminals are "conventional" in the resistor art. *The Patent Office*, on the other hand, *never made any contention that such heads are conventional* and never mentioned Fig. 10; in fact it never referred to any aspect of Kohring's disclosure. Even the Patent Office Solicitor's brief on the original hearing fails to rely on any aspect of Kohring beyond the board's statement it was "background" and showed a type of resistor. The use made of Kohring was, therefore, definitely new in the case and in support of a ground of rejection which the appellant had never heard of before reading the court's opinion herein. If rejection was to be predicated in any way on Fig. 10 of Kohring, with its flanges for engagement with the smooth walls of a bore in a hard ceramic core, appellant had the right to know it and to have his day in court. Kohring is obviously a very different structure from appellant's and made in a very different way. The statute, 35 U.S.C. 132, requires that the Commissioner shall state the reasons for the rejection so that the applicant can judge "of the propriety of continuing the prosecution of his application." The grounds stated by the majority and predicated on its application of the Kohring disclosure are *reasons for rejection* of which appellant had *never been advised* until the decision of this court, in violation of the spirit if not the letter of the statute.

I now turn to the majority's use of the Megow et al. patents.

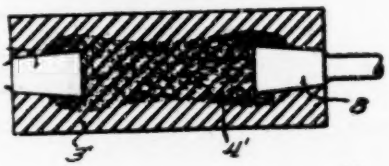
As with Kohring, the examiner did not cite the Megow et al. patents, which were cited by the board only as background art and relied on by it only to show what appellant's specification admits by reference to those patents, namely, that end-molded resistors were a ***known type*** of resistor. And as it did with Kohring, the majority found and relied on structure in the Megow et al. disclosures, which was relied on by neither the board nor the examiner to support its finding of obviousness.

The new majority opinion says that the Megow et al. patents show frusto-conical heads which have "obvious similarity in function" with respect to the "conventional dumbbell shaped head employed in the resistor art * * * ."

The reasoning of the original majority opinion, now withdrawn, relied heavily for obviousness on a "small concave depression extending around the head" (to quote from the last paragraph of the new opinion). Appellant has convincingly established the factual non-existence of that depression and the majority has at least been persuaded not to rely on it any more and to regard the propriety of relying on it as "moot" without conceding the non-existence of the depression. Its original opinion has, however, been changed in no respect other than to delete reliance on that depression and in all other respects the Megow et al. patents are still relied on. It would be well, therefore, to make clear the lead terminals which they disclose by reference to the following drawings:

MEGOW ET AL. PATENT
No. 2,271,774

Fig. 4



MEGOW ET AL. PATENT
No. 2,302,564

Fig. 9

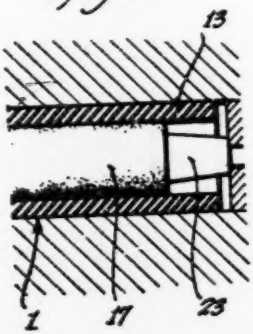


Fig. 2

Fig. 10

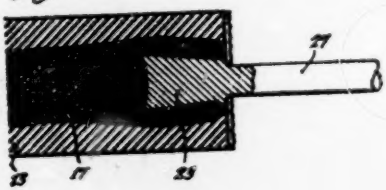


Fig. 4 of patent '774 shows a head 8 and Fig. 9 of patent '564 shows a head 23 having the identical frusto-conical shape of the heads in patent '916. *They all have perfectly smooth sides.* The '916 patent, where the only written description of them appears, says they are "frusto-conical" so that the slight *taper* of the heads aids in their retention, the "inclined sides" forming retaining ledges. The same patent says "The particular shape, however, is a matter of secondary importance, since any suitable configuration is appropriate as long as the same is sufficiently large and massive with respect to the diameter of the shank portion 26 [27 in Fig. 10 of '564] as to render the same relatively nondeformable." Patent '774 merely re-

fers to "embedded head portion 8" or "lead wire heads 8" without further description. Patent '564 says no more than "heads 23." It is perfectly clear, then, that the heads in no way resemble appellant's heads.

Figs. 2 and 10 show the *same heads* 8 and 23 as they appear in a cross-section of the finished resistor. The only difference between these two figures is that Fig. 2 shows a film of "contact material 5" coated on the end of head 8.

The first Megow et al. patent '916 discloses that molding pressures may be as high as 50,000 pounds per square inch. If Figs. 9 and 10 of '564 be compared, it is seen that the outer rim of the head might get slightly flared by the pressure, at least in spots. And the location of this flare is on the outside face of the finished resistor. Even if there is some flare, however, the body of the head, which alone is gripped by the molded resistor, is grooveless, unlike appellant's heads. We are concerned, of course, only with preventing axial movement in a direction to *withdraw* the head from the body and what holds the head in is its frusto-conical shape with the larger end inside.

In changing its rationale from a reliance on a nonexistent concavity in the Megow et al. heads to reliance on "similarity in function" with appellant's heads, the majority has merely removed one error and replaced it with two others. First, it is assumed that there *is* similarity of function, which flies straight in the face of the record which shows that appellant's heads function in a *superior* manner of which the Megow et al. heads are incapable. Second, it assumes as a matter of *law* that *similarity of function* makes out a case of obviousness of structure.

On the latter point we have just pointed out in two very recent opinions (one unanimous and one dissented from *solely* by the author of the majority opinion here) that functional equivalence does not establish obviousness under 35 U.S.C. 103. *In re Scott,* 51 CCPA 747, 323 F. 2d 1016, 139 USPQ 297, and *In re Flint,* 51 CCPA 1230, 330 F. 2d 363, 141 USPQ 299.

The majority's case for obviousness is clearly weaker in its new opinion than it was before, since a prop it formerly relied on has had to be removed.

It clearly appears to me that neither the "conventionality" assumption nor the functional similarity assertion on which the majority has predicated its obviousness decision will bear analysis, that they are not facts, that they are contrary to the record, contrary to law, and in any event they are *entirely new grounds of rejection.*

The majority opinion expresses dissatisfaction with the reasoning of both the examiner and the board in their decisions of the issue. Certainly this does not justify the assertion in this court of new and *different* grounds of rejection. Such action is "extrajudicial." *In re Sebald,* supra. If the court cannot agree with the rejection made by the Patent Office, it must reverse it or, if the rejection below leaves the court in doubt as to its propriety—which, at the very least, would appear to be the situation here—then applicant is entitled to the benefit of that doubt. That rule is too well established to require citation of authority.

The final point of the majority opinion is: "appellant's invention, if any, lies in *miniaturized* resistors. * * * The claims, however, do not reflect either that invention or appellant's arguments."

The function of claims is to point out what has been invented, not the problems that gave rise to it. The invention here is not a miniaturized resistor but a specific *structure* which contributes to making them successfully and which is also advantageous in larger sizes, as the specification points out. The majority does not suggest just how size should be injected into the claims. The solicitor, however, makes it perfectly clear what the Patent Office position would be if it were. His brief on rehearing says:

> The court correctly noted that *size* is not reflected on [in] the claims and therefore cannot be a basis for patentability (Decision-9, top). ***But even if miniaturization were claimed, it would amount to a mere difference in size*** * * *. [My emphasis.]

Furthermore, the majority's conclusion that the invention lies in miniaturized resistors flies straight in the face of the specification from which we derive our knowledge of what the invention is. I have quoted it above in PART I. The opinion appears to suggest the necessity of including in the claims some sort of size limitation to which the Patent Office admittedly would pay no attention, and with good reason. As to claiming size limitations, the majority might bear in mind one of the common "negative tests" for determining the presence of what used to be called "invention." As stated in *Walker on Patents* §68 (6th ed. 1929): "It is not invention to change the size or degree of a thing, or of any feature or function of a machine or manufacture."[4] That is still a test generally applied in the Patent Office and Courts.

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[4]It is the same in the 5th Ed. (1917) and in Deller's Edition, §31 (1937).

In conclusion, the majority opinion is not a review of the rejection made in the Patent Office, which is all that is within our power. It is a new rejection based on the finding of new grounds in references, which grounds were neither found nor asserted by the Patent Office. It is legaliy untenable.

UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

IN THE MATTER OF THE	) October Term	1963
	)	
APPLICATION OF	) Patent Appeal No.	6914
	)	
HOMER G. THOMSON	) Serial No.	720,845

September 24, 1964

SMITH, Judge, dissenting.

While I join in the dissenting opinion written by Judge Rich, I think it is desirable to amplify the discussion of an important point which arises in the following excerpt from the majority opinion:

> * * * In view of the obvious *similarity in function* between the terminal heads in the resistors of the Megow patents and the *conventional* dumbbell shaped head employed in the resistor art, use of the latter in the Megow type resistor is considered an obvious choice of terminal head to one skilled in the art. [Emphasis added.]

First, I am at a complete loss to determine *where,* in the prosecution of this application, an issue of "similarity in function" was raised. The majority thus predicates its opinion on what I believe to be a totally new ground of rejection, stated for the first time in the present majority opinion of this court. 35 U.S.C. 144 requires that our decision "shall be confined to the points set forth in the reasons of appeal." I do not find the issue of similarity of function set forth in any reason of appeal herein. This is due, I think, to the fact that issue was *not* raised by either the examiner or the board. Thus appellant did not argue the factual questions raised in connection with this issue. To deny now his claims on this basis, as the majority would do, seems to me to be a denial of appellant's right to be heard.

Moreover, I agree fully with the view of Judge Rich in his dissenting opinion that such a statement merely begs the statutory question of obviousness of the invention. As Judge Rich indicates, we have held in the several cases which he cites that functional similarity per se cannot be equated with obviousness.

If, however, we assume the propriety of making such a new ground of rejection, it should be predicated on the *technical facts* rather than upon *judicial assumptions* of such facts. The judicial assumption of technical facts upon which the majority would act is clearly and demonstrably wrong. The dumbbell-shaped head used by appellant is *not* "conventional" in any resistor art of record. While Steenweg shows a dumbbell-shaped terminal head, the significant technical differences between the Steenweg resistor and that of appellant make a comparison of the terminal heads wholly without significance. In Steenweg, the terminal head is not imbedded in resistive material as are the terminal heads claimed by appellant. Instead, the Steenweg terminal head is imbedded in a core of insulating composition which can have no effect upon the resistance value of the resistive element. This core merely serves to hold the terminal head firmly in place. Electrical connection is made between the upper, cap-like portion of the terminal head and the end of the resistive element. The Steenweg device is of relatively high power, and is used to absorb transient, high voltage oscillations which interfere with automobile radio reception. Because of the transient nature of the energy dissipated, because of the relatively large size of the resistor, and because of the location of the resistive element, arrangements for carrying away the heat generated in the resistive material do not depend so critically upon the thermal conductivity characteristics of the portion of the terminal

head which is embedded in the insulating core. Further, there is no problem of electrical contact and conductivity with respect to the embedded portion of Steenweg's terminal head.

Such is not the case with appellant's device, however. As stated in the specification, appellant's terminal heads are "highly conductive of both electricity and heat," and further:

> It should be noted that any loosening of the helix [of the prior art frusto-conical terminals], even though so slight as to be unobservable, or any cracks in the resistance path, even though so slight as to be unobservable, are apt to change appreciably the electrical characteristics of the resistor.

Thus, appellant faced at least three distinct problems with respect to terminal head design which were of little or no consequence to Steenweg: 1) the need for a terminal head which would provide good thermal contact and conductivity, since the only effective way to dissipate heat generated in the resistive material, in a resistor like appellant's, is to conduct it away by means of the terminal leads; 2) the need for a terminal head which would provide good electrical contact and conductivity; and 3) the need for a terminal head whose mechanical design would resist displacement due to stress and thus ensure continued good physical contact with the resistive material.

There is no doubt that appellant's device overcomes these problems and there is no doubt that the Steenweg device is not subject to them. There is no suggestion in any prior art of record that appellant's dumbbell-shaped terminal head would be effective to establish and maintain satisfactory electrical and thermal contact with the surrounding resistive material and also to provide sufficient

thermal conductivity. The areas of contact between appellant's dumbbell-shaped heads and the resistive material result not only in high mechanical strength, but, even more importantly, they provide the intimate surface contacts necessary to assure both electrical and thermal stability.

We are dealing here with electrical devices of a relatively high order of precision. They are effective only so long as they retain that precision. Thus a resistor of a certain rated wattage and resistance must retain those characteristics within predetermined tolerance limits if it is to be effective. Heat build up in such a resistor can so disrupt the electrical path that the resistance may well fall outside the set tolerance limits; indeed, it may destroy the resistor altogether. Excess heat may also affect adversely the physical contact between the terminal heads and the resistive material, resulting in further undesirable variation in the operating characteristics of the resistor. There is no suggestion in any of the art of record of any "similarity in function" in these respects.

I agree with Judge Rich that the appealed decision should be reversed.

APPENDIX B TO PETITION FOR WRIT OF CERTIORARI

CONSTITUTIONAL, STATUTORY AND REGULATORY PROVISIONS INVOLVED

United States Constitution, Article III, Section 2, First Paragraph:

SECTION 2. The judicial power shall extend to all cases, in law and equity, arising under this constitution, the laws of the United States, and treaties made, or which shall be made, under their authority; to all cases affecting ambassadors, other public ministers and consuls; to all cases of admiralty and maritime jurisdiction; to controversies to which the United States shall be a party; to controversies between two or more States, between a state and citizens of another state, between citizens of different States, between citizens of the same state claiming lands under grant of different States, and between a state, or the citizens thereof, and foreign States, citizens or subjects.

United States Constitution, Amendment V:

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

United States Code, Title 35:

§ 132. Notice of rejection; reexamination

Whenever, on examination, any claim for a patent is rejected, or any objection or requirement made, the Com-

missioner shall notify the applicant thereof, stating the reasons for such rejection, or objection or requirement, together with such information and references as may be useful in judging of the propriety of continuing the prosecution of his application; and if after receiving such notice, the applicant persists in his claim for a patent, with or without amendment, the application shall be reexamined. No amendment shall introduce new matter into the disclosure of the invention.

§ 141. Appeal to Court of Customs and Patent Appeals

An applicant dissatisfied with the decision of the Board of Appeals may appeal to the United States Court of Customs and Patent Appeals, thereby waiving his right to proceed under section 145 of this title. A party to an interference dissatisfied with the decision of the board of patent interferences on the question of priority may appeal to the United States Court of Customs and Patent Appeals, but such appeal shall be dismissed if any adverse party to such interference, within twenty days after the appellant has filed notice of appeal according to section 142 of this title, files notice with the Commissioner that he elects to have all further proceedings conducted as provided in section 146 of this title. Thereupon the appellant shall have thirty days thereafter within which to file a civil action under section 146, in default of which the decision appealed from shall govern the further proceedings in the case.

§ 142. Notice of appeal

When an appeal is taken to the United States Court of Customs and Patent Appeals, the appellant shall give notice thereof to the Commissioner, and shall file in the Patent Office his reasons of appeal, specifically set forth

in writing, within such time after the date of the decision appealed from, not less than sixty days, as the Commissioner appoints.

§ 143. Proceedings on appeal

The United States Court of Customs and Patent Appeals shall, before hearing such appeal, give notice of the time and place of the hearing to the Commissioner and the parties thereto. The Commissioner shall transmit to the court certified copies of all the necessary original papers and evidence in the case specified by the appellant and any additional papers and evidence specified by the appellee and in an ex parte case the Commissioner shall furnish the court with the grounds of the decision of the Patent Office, in writing, touching all the points involved by the reasons of appeal.

§ 144. Decision on appeal

The United States Court of Customs and Patent Appeals, on petition, shall hear and determine such appeal on the evidence produced before the Patent Office, and the decision shall be confined to the points set forth in the reasons of appeal. Upon its determination the court shall return to the Commissioner a certificate of its proceedings and decision, which shall be entered of record in the Patent Office and govern the further proceedings in the case.

§ 145. Civil action to obtain patent

An applicant dissatisfied with the decision of the Board of Appeals may unless appeal has been taken to the United States Court of Customs and Patent Appeals, have remedy by civil action against the Commissioner in the United States District Court for the District of Columbia if commenced within such time after such decision, not less than

sixty days, as the Commissioner appoints. The court may adjudge that such applicant is entitled to receive a patent for his invention, as specified in any of his claims involved in the decision of the Board of Appeals, as the facts in the case may appear and such adjudication shall authorize the Commissioner to issue such patent on compliance with the requirements of law. All the expenses of the proceedings shall be paid by the applicant.

Rules of Practice, United States Patent Office:

196. Decision by the Board of Appeals.

* * *

(b) Should the Board of Appeals have knowledge of any grounds not involved in the appeal for rejecting any appealed claim, it may include in its decision a statement to that effect with its reasons for so holding, which statement shall constitute a rejection of the claims. The appellant may submit an appropriate amendment of the claims so rejected or a showing of facts, or both, and have the matter reconsidered by the primary examiner. The statement shall be binding upon the primary examiner unless an amendment or showing of facts not previously of record be made which, in the opinion of the primary examiner, avoids the additional ground for rejection stated in the decision. The applicant may waive such reconsideration before the primary examiner and have the case reconsidered by the Board of Appeals upon the same record before them. Where request for such reconsideration is made the Board of Appeals shall, if necessary, render a new decision which shall include all grounds upon which a patent is refused. The applicant may waive reconsideration by the Board of Appeals and treat the decision, including the added grounds for rejection given by the Board of Appeals, as a final decision in the case.